

FLIGHT

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AIRSHIPS

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Founder and Editor: STANLEY SPOONER

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DIARY OF FORTHCOMING EVENTS.

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:

Aug. 3 ...	Air Ministry Competition (Large and Small Type Aeroplanes)
Sept. 1 ...	Air Ministry Competition (Seaplanes)
Sept. ...	International aviation week (with competitions) at Brescia, Italy
Sept. 8, 9 and 10	Fédération Aéronautique Internationale Conference, Geneva
Sept. 18-19	Schneider International Race, Venice
Sept. 27 to Oct. 2	Gordon-Bennett Aviation Cup, France
Oct. 1, 2, 3.	A.C.F. Meeting at Buc
Oct. 7 ...	Lecture on "Civil Aviation," by Sir F. H. Sykes
Oct. 21 ...	Lecture, "A Comparison of the Flying Qualities of Single and Twin-Engined Aeroplanes," by Squadron-Leader E. H. Hill
Oct. 23 ...	Gordon-Bennett Balloon Race, Indianapolis, U.S.A.
Oct. or Nov.	U.S. National Aeroplane Race (New York to San Francisco)
Nov. 1 ...	First Open Competition for R.A.F. Boy Mechanics

EDITORIAL COMMENT



The Royal Air Force and its Critics

FOR some reason a certain section of the Dailies seems to be making a set at the Air Ministry and the methods employed in staffing it. It alleges that there is "grave dissatisfaction" because ex-Service men with good fighting and office records have been dismissed from the staff of the Air Ministry to make room for men who have never seen real service, and who only got commissions in the Air Force during the War as a "protection," so that they should not be called up for Navy or Army. The *Morning Post*, which has led in this accusation, claims that it is admitted that many ex-Service men with distinguished records are being turned off. The reason given, that there is not work for them, is unanswerable if it represents the truth and the whole truth. But, says our contemporary, the gravamen of the accusation, which calls for strict enquiry, is that other men, not ex-Service in any real sense of the term, are, meanwhile, being given positions. "The fighting man goes out at one door while the shirking man goes in at another." It is alleged that seventeen cases have been brought to the notice of the *Morning Post* in which men without active service experience or technical qualifications have been given permanent Staff posts in the R.A.F.

These are very serious statements, and if they can be substantiated they certainly call for grave censure upon the authorities who are responsible for these appointments. But we hesitate to believe that the facts can be as alleged. Not that we impugn the good faith of the *Morning Post*. We have far too high an opinion of its disinterested honesty for that, but we do think it has been misinformed in this particular matter. At any rate, we sincerely trust it has. Baldly stated, as a series of facts, it looks bad on the face of it, but we suggest that every case must be taken absolutely on its own merits. It must be remembered that aeronautics is a highly technical business, and the primary consideration in staffing the Air Ministry must be the fitness of each man for the job to which he is appointed. The fact

that a man has had a very distinguished record in the War will not of necessity entitle him to occupy a post to which he may be temperamentally and technically unsuited. He may have been a most gallant officer, with any number of victories in aerial combat to his credit, but that will not ensure that he will make an efficient Staff officer in the specific job which happens to be going at the moment. As a matter of strict fact, it has been found in many cases that the most brilliant fighting officers are veritable duffers at office work. We recollect a case in point of a very distinguished officer who was appointed, rather against his will, to an important Staff job, and before he had held it for a month he was known throughout his department as "Alice in Wonderland" and was begging to be sent back to duty. It is obvious that unless Staff officers are selected with a single eye to their efficiency in their several capacities the result may be something approaching disaster, more especially when the work is of the highly technical nature demanded by the R.A.F. We most absolutely agree that, all other things being equal, the fighting man should be the very first consideration. But where all other things are *not* equal, the efficiency of the Service must be the paramount thought in the minds of those who have the making of appointments.

We are afraid we cannot take too seriously the charge that men are being appointed who have no technical qualifications for their jobs. One of the first things that occurs to the disgruntled one who has been supplanted, or whose application for a specific post has been unsuccessful, is to say that the man who has got it is some kind of a qualified fool, who is quite ignorant of the work which the other could have performed to perfection. That is human nature as we know it, and we imagine that in this is the source of the complaint in question. But the charge has been made, and we think that in justice to everyone concerned there should be an attempt to substantiate that charge. More than that it does not seem necessary to say at the moment.

The Esnault- Pelterie "Joy-Stick" Bombshell

The claim advanced by M. Esnault-Pelterie to a royalty of £80 per machine, where the method of control used is by the familiar "joy-stick," has been a bombshell thrown into the camp of the French aviation industry. The total sum at issue is nearly three millions sterling, and the number of machines upon which the claim in France is made is over 33,000. M. Esnault-Pelterie claims to hold all the patents covering this method of control, his patents going back to 1906-7.

Up to the moment, the French courts seem to have upheld his claims and have granted all sorts of injunctions and embargoes on sums owing by the Government to the various constructors against whom claims have been made. Some of these are very heavy indeed. For instance, there are claims for 20 million francs against the Spad firm; Nieuport and Breguet, 16 millions each; Caudron, 8 millions; Morane-Saulnier, 5 millions; and Henri Farman, 1 million francs. The whole of the French industry affected has announced that if the claims are persisted in, all the aeronautical works will be closed down and many thousands of workers thrown out of employment.

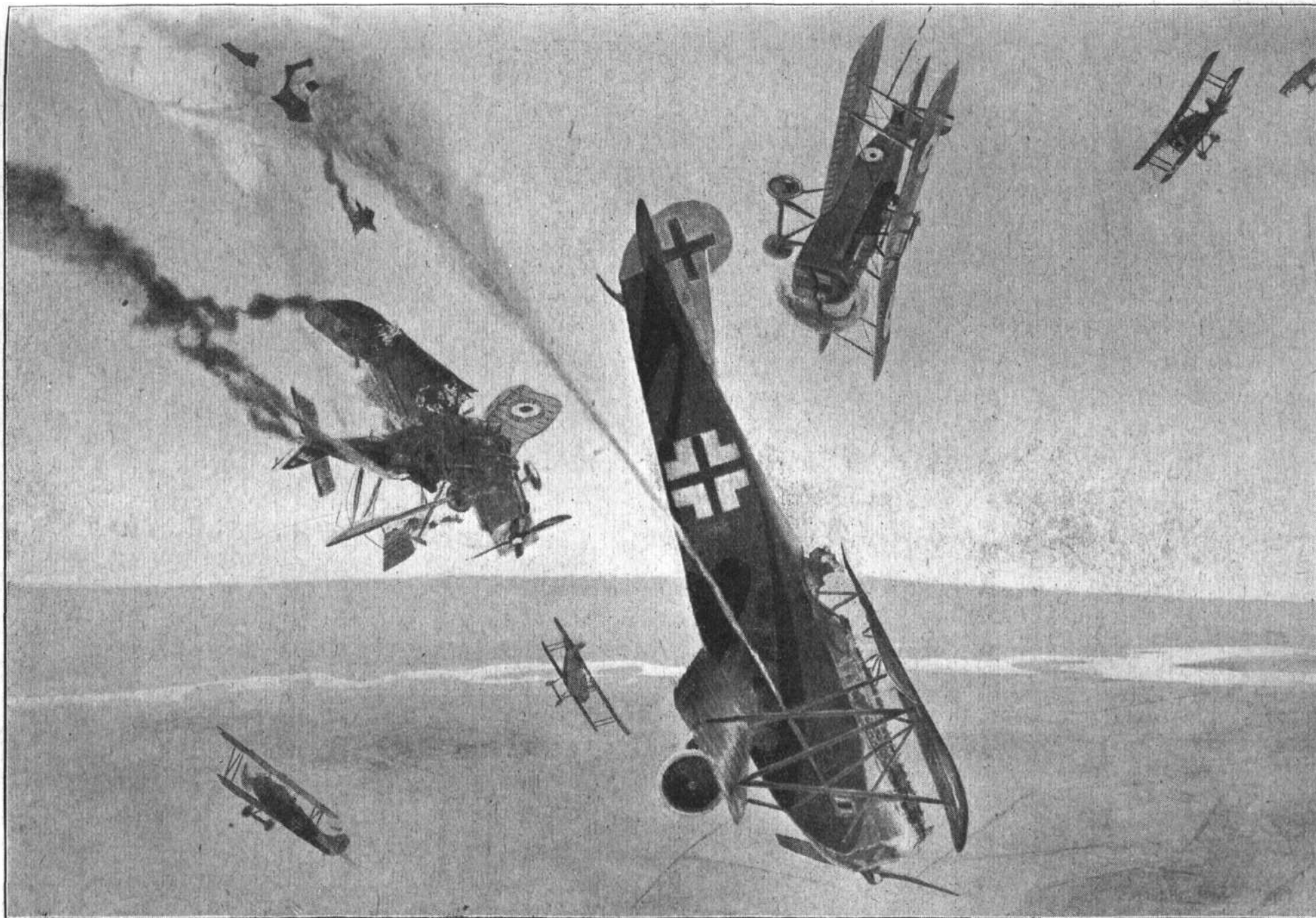
So far as it is possible to discover, the patents involved were taken out, as we have said, in 1906

and 1907. In 1912 proceedings were taken in the civil courts to enforce the patents. These went on until 1914, when an expert commission was appointed to investigate the validity of the patents. Then came the War, which held up everything, and the proceedings hung fire until March of last year, when the commission was reconstituted for the purpose of settling the amount of royalty to be paid on each machine in which the patents were embodied, and also the number of machines involved. A month ago the royalty seems to have been fixed at 2,000 francs per machine, and an order made against the firm of Letord and Niepce. This was closely followed by similar orders against Messrs. Breguet and the Morane-Saulnier firm. Messrs. Vickers are involved, apparently in respect of machines supplied to the French Government, on which a payment of 1,500,000 francs was demanded. This amount was reduced after argument before the judge to 800,000 francs, and what amounts to a garnishee order was made against sums owing to the firm by the French Government. There seems to be every prospect that the proceedings will drag over during the next five years before a final settlement is arrived at, but in the meantime consternation is a mild term to apply to the state of mind into which the industry has been thrown.

What of the British Industry?

The question which everybody is asking is whether or not the Esnault-Pelterie patents affect the British industry. It is stated that several firms have been "approached" by the inventor on the subject, but that does not carry us very far. M. Esnault-Pelterie does hold certain British patents dealing with the control of aeroplanes, which we have not as yet had time properly to investigate. A first examination would seem to indicate that they are not of any far-reaching effect because of their circumscribed nature. There certainly does not appear to be anything that could be held to have the character of a master-patent on the "joy-stick" method of control. There is, moreover, always the question of priority of invention to be investigated. Admittedly, M. Esnault-Pelterie was one of the first, if not the first, to invent this method of control, but there is certainly a doubt whether or not he fully covered his invention through the British Patent Office. Further, as the Wright Brothers found when they attempted to patent certain of their inventions here, there were a large number of inventions patented already before actual flying had become an accomplished fact. In several directions there had been clear anticipation, although there were no machines to which the inventions could be applied, and their attempts to obtain protection thus failed. Apart altogether, then, from the question of precisely what steps were taken to cover the Esnault-Pelterie inventions, there is always the possibility—amounting almost to probability—that a careful search of all the records would reveal the fact that they had been essentially anticipated prior to the date of the French patents.

For the sake of the British industry it is sincerely to be hoped that one of the two contingencies noted may have arisen. Anything like the demands which have been sprung upon the French industry would spell something very like ruin to the British firms engaged in the construction of aircraft. The strong probability is that nobody would benefit in the end



RETRIBUTION : Three Fokker biplanes have attacked an S.E.5 at 12,000 feet, and with a blazing petrol tank it falls in pieces. Swiftly two more S.E.5s and a Sopwith Camel race to avenge the duel, and a Fokker biplane is seen in its last dive, with the engine hit and the pilot shot dead.
From an original drawing by Roderic Hill

but the lawyers, to whom such a case as would undoubtedly arise would be veritable manna from the skies. It is certain that such far-reaching claims would be fought to the bitter end, and it would be a matter for speculation whether the French courts or our own would be the first to deliver the last and final judgment. However, without presuming to pass judgment on such important issues on the very cursory examination of the Patent Office records we have been able to make in the time available, we are inclined to the opinion that, whatever their value in France, the Esnault-Pelterie patents taken out in England are not such as would support claims like those which have been recognised *ad interim* on the other side of the Channel.

The Crystal Palace Exhibition

A number of the exhibitors at the Crystal Palace—which is so important from an aeronautical point of view—seem to have a grievance because of the failure of the executive to advertise the industrial section. They complain that the War Museum and the side-shows have been adequately advertised, but that not the slightest attempt has been made to attract foreigners and other buyers who might be interested in the goods exhibited. The complaint has been countered by the general manager of the Exhibition, who makes the point that, with two exceptions, none of the firms associated

with the complaint have paid more than 4d. per foot super per week for the space they rent, and that several have only show-cases, with no attendant in charge. In so far as the attendance of the public is concerned, over half a million persons have passed the turnstiles during the time the Exhibition has been open. On Bank Holiday 94,000 people visited the Palace, so that there does not seem to be much ground for complaint on that score.

A lesson that has been learned during the run of certain other exhibitions is that where people have goods to sell and desire to attract the purchaser they must regard the exhibition as a supplementary place of business and take their own measures to bring the public to their exhibits. The Crystal Palace executive has spent, or is spending, £15,000 in advertising the Exhibition, and if the public flocks there in its thousands and ignores the Industrial Section, it is only because the exhibitors have not told the public that they are there and want to do business. It would be too much to expect the Exhibition authorities to individually advertise the exhibitors. That is a matter they must see to for themselves. All an exhibition management can do is to allot space and advertise the show as a whole. The individual who takes space must himself tell the public what he is exhibiting and wherein lies its special appeal. This is a lesson that will pay for learning by more than the complainers at the Crystal Palace.

THE R.E.P. LITIGATION IN FRANCE

On the previous pages we have commented at length upon the litigation in France which has arisen over a demand made by M. Robert Esnault-Pelterie, upon certain French aeroplane makers for the payment of a royalty of 2,000 francs for each machine built which uses a control lever (*manche à balais*), or "joy-stick," as it is popularly termed in England. The claim is made under patents granted in France in 1906, and 1907 and it appears that M. Pelterie and M. Blériot both applied for patents covering the device about the same time, the former succeeding in being first in France, while M. Blériot secured his patent first in Germany.

Several firms seemed to have obtained licences from M. Pelterie, but as others consistently ignored the patent, M. Pelterie in 1912 commenced an action against them. Legal process in France, especially when it relates to patents, is dilatory, to say the least, but by March 28, 1914, the Paris Courts had ordered an enquiry to be made by experts as to the validity of the patents in question. By an order of March 8, 1919, the Court pronounced the patent valid and ordered the infringing firms to pay damages, the amount of these damages to be determined by a committee of experts. This committee has apparently decided that the royalty should be 2,000 francs per machine.

In the meantime, M. Pelterie has secured an injunction preventing the French Government paying over to the constructors certain moneys which are due to the latter until the case is settled. It is stated that the State owes in this way between 9 and 10 million francs, while the amount claimed by M. Pelterie totals to about 65,000,000 francs. According to one account, the amounts claimed from various firms include: Spad, 20 million francs; Nieuport, 16 millions; Breguet, 16 millions; Caudron, 8 millions; Morane-Saulnier, 5 millions; Henri Farman, 1 million, etc.

On July 29 the Court granted a decree for payment of royalty at the rate of 2,000 francs per machine against the Letord & Niepce firm, and on July 31 a similar order was made against M. Louis Breguet. The matter was argued at length in the Court on August 7 in an action against MM. Robert Morane and Borel, when, however, judgment was deferred for eight days. Just previous to this case being heard, a similar action against Messrs. Vickers was heard. M. Pelterie's counsel sought to garnishee a sum of 1,500,000 francs owing by the French Government to Messrs. Vickers, but after hearing arguments the President of the Court reduced the amount to be earmarked to 800,000 francs, and

ordered it to be paid into Court in the form of *Bons de la Défense Nationale*.

Feeling is running very high in France in connection with these actions, and at the hearing on Monday of an appeal by M. Breguet against the decision of July 31, M. Breguet was ordered to leave the Court. An action against the Caudron firm was down for hearing on Tuesday.

So far the question has centred round the French patent. From the hurried search among the British patent records, which has been possible in the brief period available, it appears that of the seventeen English patents granted to M. Robert A. C. Esnault-Pelterie, the following relate to control:—

- 1907.
- 28034, December 19. French patent same date previous year.
- 1908.
- 221, January 3. French date, January 19, 1907.
- 1258, January 18. French date, January 29, 1907.
- 10528, May 14. French, May 22, 1907.
- 28026, 28027, 28028. December 23. French, December 26, 1907.
- 1909.
- 15637, July 5. French, July 16, 1908.
- 23309, October 12. French, November 11, 1908.
- 1910.
- 9495, April 19. French, April 20, 1909.
- 10575, April 29. French, May 6, 1909.

It should be noted that some of these are distinctly limited by the *purpose* being specified too closely. Thus, 221 of 1908 limits control to wing warping only, without reference to aileron control, nor to rudder control; 1258 of 1908 refers only to rudder-tilting use of a lever. On the other hand, 28027 of 1908 distinctly specifies a system of control with two levers, and it is clear from drawings and specification that the system could not work with one only, nor is intended to be so worked. It is intended to be an improvement on the general method of 1258 of 1908, already limited to rudder only. The next one, 28028 of 1908, refers to single control, but for the *purpose* of wing-warping without deforming the beams or spars.

Again, in 23,309 of 1909 we have a rocking joystick for rudder control only; while in 10575 of 1910 we have spring compensated single lever for movement both sideways and back and forth, for the purpose of varying incidence of main planes, and wing-warping but not mentioning rudder control.

PROGRESS OF MARTLESHAM COMPETITION

General Notes on Competition and the Available Results

A START has now been made with the tests of the Air Ministry competition at Martlesham, but as several of the tests have to be made in winds of not more than 5 m.p.h. some considerable time may elapse yet before the tests can be completed. This applies especially to the alighting and getting-off tests, while the low-speed tests, which must be carried out at a considerable altitude, demand good visibility without low clouds. All the machines entered in both classes have now arrived at Martlesham and several have been through their first tests. The Avro triplane, piloted by Capt. Hamersley, was the first to pass the high-speed test, reaching a maximum speed at ground level, over the measured course at Martlesham, of 95.7 m.p.h., which must be considered good for this type of machine and power loading, although falling slightly short of the stipulated maximum speed of 100 m.p.h. Hawker on the Sopwith "Antelope" was the first to pass the endurance tests, which consist of two flights of 3½ hours each at a speed of not less than 80 m.p.h. and at an altitude of at least 3,000 ft. The economy test is carried out in conjunction with the reliability test, and the marks are awarded

according to the formula $\frac{W}{G}$ in which W = Useful load in lbs., including weight of passengers carried, but excluding weight of crew, petrol and oil, and G = the number of gallons of petrol and oil used in the reliability flight. In the case of the Sopwith "Antelope" $\frac{W}{G} = 4.3$. That is to say, if the weight of the two passengers is taken as 400 lbs. the number of gallons of petrol and oil used on the flight (7 hours at 80 m.p.h.) was 93 gallons. These figures are merely given to indicate the use of the formula and do not necessarily represent the actual figures of the Sopwith "Antelope." Mr. Hawker has also since then done his high-speed test which worked out at 110.35 m.p.h., as well as the uncontrolled flight of 5 mins. duration. This latter, by the way,

is more difficult than one would imagine at first sight. Five minutes seems quite a short time, but in the air an aeroplane has time to do all manner of peculiar stunts in five minutes. If the air be absolutely still it is easy enough, or if the wind is steady, but if there are any gusts about the machine must be turned off its course time after time as a fresh gust strikes it. However, all the pilots at Martlesham feel confident that their particular machine will be able to pass this test. So far the only other machine to pass the uncontrolled flight of five minutes is the Austin "Kestrel," piloted by Mr. Nares. In the first attempt the "Kestrel" did over two minutes, when it was struck by a gust and Nares had to take control. When the machine had been steadied all went well again for a second attempt, until it was discovered that the observer's watch had stopped. By the time he had fished another out of his pocket Nares had got the machine steady again, and this time the five minutes were completed without touching the controls. At the end of this test Mr. Nares did a second of the three compulsory tests: Landing from 500 ft. with the engine throttled right down. This test is a source of considerable amusement to the pilots assembled at Martlesham, and certainly it would appear to have been more in place in a competition some ten years ago. Mr. Nares also passed the high-speed test, his speed over the course averaging 109.96 m.p.h.

In the large machine class, the only machine to have started its tests is the Vickers Vimy-Commercial, which has completed its reliability test of two flights of 3½ hours each. Unfortunately no figures are as yet available regarding the value for this machine of the formula $\frac{W}{G}$.

The Handley-Page W8 has had one of her airscrews broken and is held up until a new one can be got ready. The Central Aircraft Co.'s machine, the Centaur 2A, is awaiting favourable weather before commencing her tests.

THE MACHINES

In our last issue we were able to give illustrated descriptions of most of the machines entered for the competition. We now supplement the information given last week by a few additional notes on interesting details on the machines as actually at Martlesham. There are in all nine machines taking part. Not a great number considering the value of the prizes offered, especially in the large class, in which three only are entered. In the small class the entries are more numerous, six machines taking part in the tests.

The only machine entered in which no pretence has been made of enclosing the passenger in a "cabin" is the Austin "Kestrel," the makers claiming that, in a small machine at any rate, it is far better to leave the passenger outside, where he has at least a very good chance of getting out of the machine in case of a crash. By providing a suitable wind screen of ample proportions as great comfort is claimed for this as for the majority of enclosed cabins. There is certainly a good deal to be said for this argument, especially as regarding ease of getting out after a crash. On several machines which we could mention it would be decidedly awkward to get out if by any chance the machine overturned in landing, unless the passengers were provided, as a standard part of their travelling outfit, with an efficient tin-opener with which to cut their way out. On the other hand, the advocates of the cabin machine will say that a machine should not turn over on landing, and the question of getting out does not then arise. It is, however, a fact that any type of machine (by this we do not mean any individual machine) will have a landing crash at some period or other in its career if it be used to any extent, and therefore the ease of exit is a problem worthy of note. In the competition itself 4 marks (max.) are given for this feature as regards the passengers, so that those responsible for drawing up the regulations have realised that the necessity may arise. We think, however, that more marks might have been given for this. We notice that in the case of the pilot two marks only are given for freedom of entry and exit. Why the unfortunate pilot should be deemed of only half the value of the passengers is not obvious, unless the rules governing this particular feature are only meant to apply to the machine when in a normal, undamaged position on the ground.

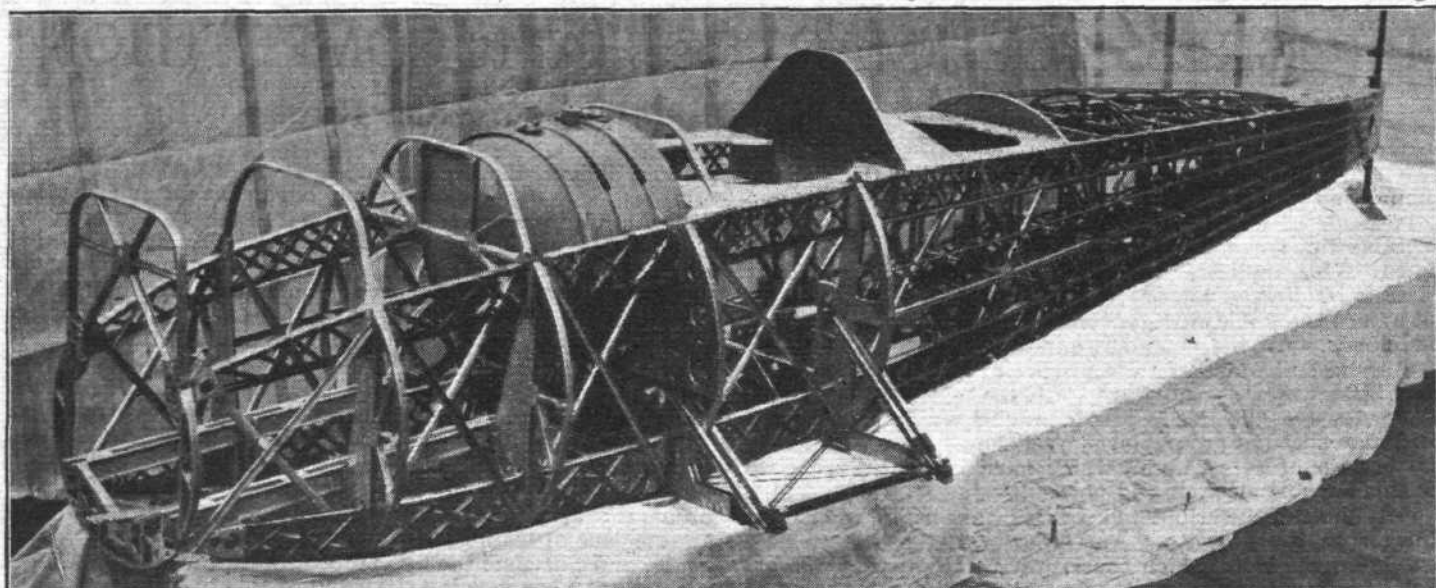
The Avro triplane has already been fully described, and there are no novel features which have not already been

referred to. The general impression is that for her power loading this machine has a very good speed, considering the triplane structure.

From a constructional point of view perhaps the most interesting machine at Martlesham is the Beardmore W.B.10. In our last issue we published the general arrangement drawings of this machine, which we now supplement with a photograph of the fuselage. The material used in the construction is chiefly duralumin, made up into lattice girders after the fashion of the German Zeppelin airships. Thus the four longerons are of this type, built up of two channel section flanges, joined by a series of lattice bars forming letters X. These four longerons are joined by transverse formers and cross-braced by diagonal channel section tie rods, placed back-to-back and riveted at the point where they cross one another. To this main structure is added stringers which bring the outside form up to a streamline shape.

The duralumin spars of the short wing roots of the lower plane are built into the fuselage, and are braced by double struts of channel section from the fuselage formers. Each of these struts is formed of two channels, placed back-to-back but not in contact with one another, and the whole is then enclosed in a streamline casing. The rear spar of these wing roots has a hinge at its outer end for folding the wings.

The 200 h.p. Beardmore engine is mounted on channel section bearers in the nose of the fuselage, and as the radiator is fitted into the top centre section a very neat cowling surrounds the front of the engine. A fireproof tank is placed immediately behind the engine, and behind that again is the passenger's cockpit, which has a hinged "conservatory" roof to it. In order to facilitate getting into and out of this cockpit, the trailing portion of the top plane centre section is hinged along the rear spar so that when folded up it lies flat on top of the top plane. This also gives access to the aileron cable, which is accommodated in a hollow in the leading edge of the hinged flap, the turnbuckles being placed here so as to facilitate adjustments. The wings, of which the top plane has a greater chord than the lower, are heavily staggered, and only the top one is provided with ailerons. At the time of writing the machine is not yet ready, having had to be rushed off to Martlesham in time to be accepted, and there will therefore be a number of test flights to be made



THE BEARDMORE W.B.10: Our photograph shows the construction of the all-metal fuselage

before the machine can be ready for taking part in the competition.

The machine entered by the Bristol Aeroplane Co., Ltd., is very similar in general outline to the standard Bristol "Tourer." Constructionally, however, many departures have been made from usual practice. Thus the front portion of the fuselage is built in steel tube, as this is considered safer from the point of view of fire, and also has the advantage over wood in a crash that it does not splinter. As in the standard Bristol "Tourer" the pilot sits in front, while the passenger is placed in a small cabin—it is really little more than an ordinary cockpit with a lid on it—immediately behind him. Instead of the stick control now almost universally fitted on small machines, the Bristol has wheel control. In front of the wheel, one on each side, are two short levers operating independently the wheel brakes with which this machine is fitted. Thus, by pulling on one brake harder than the other the machine can be made to swerve at low speeds in order to avoid obstacles. The brakes themselves are of the multiple-disc type, with Ferodo lining, and are very efficacious. In order to prevent the machine from nosing over when the brakes are applied, there is a front skid in the form of a large steel "spoon" carried on a single tube coming down from the fuselage. The lower end of this tube is held in place by two diagonal radius rods running to the lower ends of the undercarriage legs. The single front tube is telescopic, and a coil spring resists the compression of the tube. In this manner the "spoon" has quite a considerable travel, and it will be interesting to see from practical tests how this arrangement

compares with the front wheels fitted on most of the other machines provided with brakes. As a matter of fact it does not always follow that when applying the brakes the front wheels will come in contact with the ground. For instance, on the Westland Limousine we have seen the brakes applied and the tail come up, but not far enough to make the front wheels touch the ground.

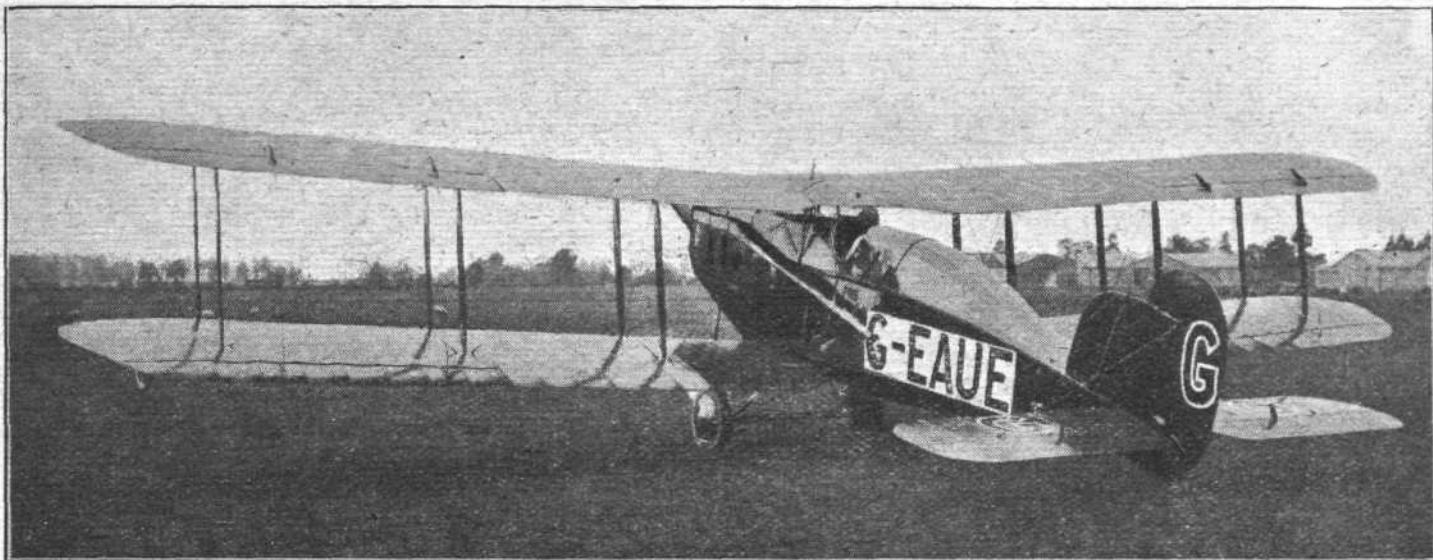
The wings of the Bristol are of larger area than those of the standard "Tourer," and have three pairs of interplane struts on each side. Some of the wing fittings are very neat, especially the strut fittings. The struts are pin-jointed by means of longitudinal pins to the steel plate fittings, which are in turn bolted to the inner faces of the spars. There are two compression tubes between each pair of strut attachments, one at the top of the spar and one at the bottom. Owing to the stagger a projection of the centre line of the struts passes very nearly through the neutral axis of the spars. The incidence wires are secured to lug projections of the strut shoes, and not to part of the spar fitting as is more usually done.

It might be mentioned that this Bristol machine was designed for the Martlesham competition as originally planned. Later, it may be remembered, the rules were altered after representations made by the S.B.A.C., but by then work on the machine had progressed so far that it was decided to carry on with it, although the new rules made a new design desirable. Otherwise a different type of machine would probably have represented this firm. The Bristol has now passed her high-speed test, attaining a speed of 108.3 m.p.h.

In our reference to the Sopwith "Antelope" last week



THE BRISTOL "SEELY PUMA" BIPLANE: Three-quarter front view



THE BRISTOL "SEELY PUMA" BIPLANE: Three-quarter rear view

mention was made of the four-wheeled undercarriage, and that some form of brake would probably be fitted. This can now be confirmed, as the machine has two band brakes, operated from the pilot's cockpit. The front wheels are well forward and of wide track, so that there is little possibility of the machine nosing over, and one evening when taxiing in after a flight Mr. Hawker demonstrated the efficiency of the brakes by pulling up sharp just in front of the hangar. In other respects the Sopwith "Antelope" is just as exhibited at Olympia, with the exception that the ailerons have been cut down in chord.

There is little to add to the description of the Westland 6-seater Limousine published last week, but a few general impressions of its behaviour, gathered during a flight in this machine during last week, may not be without interest. With four passengers on board the Westland rose from Martlesham Heath after a very short run over a ground which is none too nice, and for the greater part covered with bracken. Rising to an altitude of about 3,000 ft., the machine circled around, passing at one time just to the north of Felixstowe and Harwich. The temperature in the cabin was comfortable and the air fresh and pure, what with the ventilator in front and the opening in the roof through which projects the pilot's head. Gradually Capt. Keep got the machine trimmed to a nicety at a cruising speed of about 80 m.p.h., and locking the rudder control he let go of everything and came inside the cabin and had a chat with his passengers. One confesses to a feeling of slight nervousness at the idea of the machine being lugged along through the

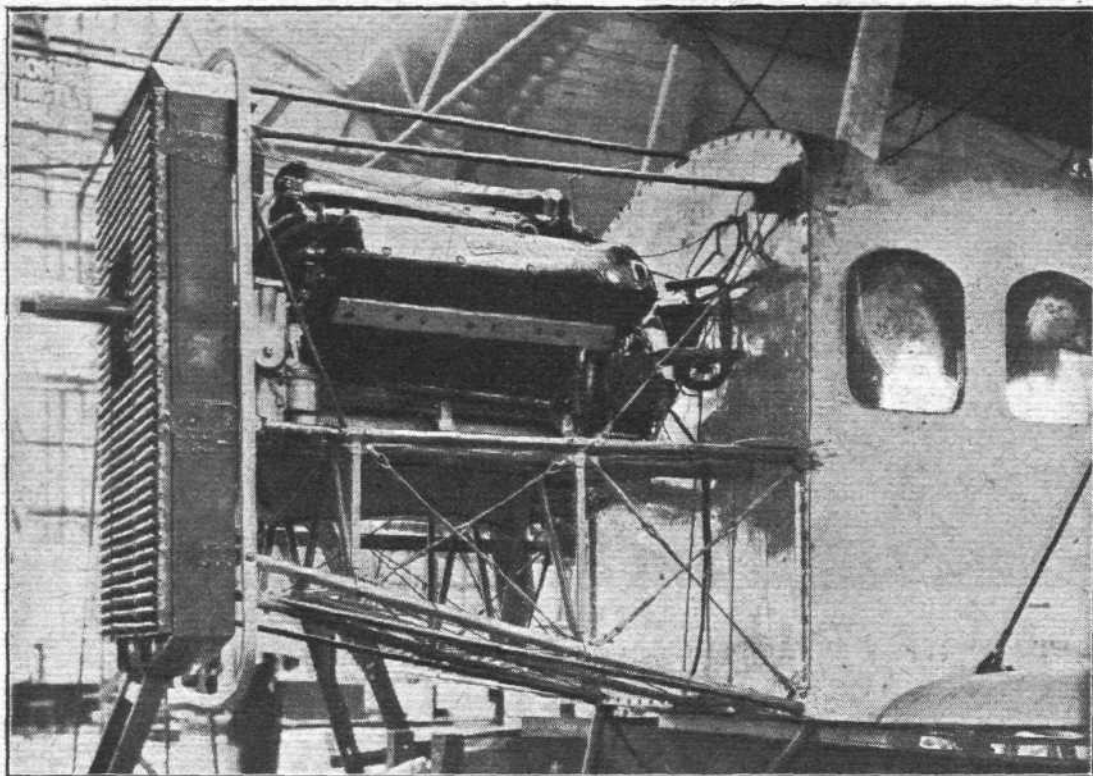
air by 450 h.p. and left to its own devices, but the evident stability of the machine soon assured one that all was O.K., and for a couple of minutes or so we cruised about "uncontrolled," the only effect of leaving the machine to herself being a very gradual turning to the right. It is, of course, a matter of some difficulty to adjust the rudder to such a nicety that no turn will be made, whilst a gust striking the machine and starting her on a turn will have the effect of keeping her turning until another gust starts her off on another course. The absence of noise in the cabin was remarkable, especially those occupying the front seats being able to converse quite freely. Also the view is distinctly good, thanks to the many windows. This also applies to that of the pilot, who can see over the top left-hand side, while by ducking his head inside he obtains a good view to starboard through the windows in that side of the cabin.

One noticed that both windmill pumps, mounted on the lower plane some distance out, were within the view of the pilot, and there is thus no danger of either of them stopping without the pilot being aware of the fact. The piping is so arranged, that the overflow from the gravity tank always runs back to the wing tank which is being used, and there is therefore no possibility of accidentally pumping all the petrol out of one tank and into the other. Although it is extremely unlikely that both pumps should break down at once, this contingency has been guarded against by fitting an independent hand pump on the right-hand side of the pilot's seat.

It was noticed that Captain Keep could trim the machine



THE WESTLAND 6-SEATER LIMOUSINE: Note the petrol tanks underneath the lower plane



The Westland 6-seater Limousine: View of the mounting of the 450 h.p. Napier-Lion aero engine

to fly level at practically all speeds within the range of the machine, the maximum attained being about 110 m.p.h. with the engine doing 2,000 r.p.m. This figure can, however, be improved upon, it is thought, and a maximum speed of in the neighbourhood of 120 m.p.h. is anticipated ultimately. At the time of writing the machine has not yet had an opportunity of doing its speed test over the measured course.

After a long glide with the engine throttled right down we made a perfect landing, the new undercarriage being certainly very much more "squashy" than the standard vee undercarriage of the smaller Westlands. The brakes were brought into play, but although they pulled the machine

up quickly and brought the tail up, the front wheels bore no traces of having been in contact with the ground.

With regard to the provisions taken against risk of fire, so certain is Capt. Keep of their efficiency that he handed cigarettes around during the flight. However, so deeply rooted is the habit of regarding smoking on board as being taboo that we all declined with thanks, although as a matter of fact it would undoubtedly have been perfectly safe in view of the fact that the two main petrol tanks are placed under the bottom planes a considerable distance out from the fuselage, while the service tank is mounted in the top plane, and there is no piping inside the cabin, which is separated from the engine-room by an asbestos and aluminium bulkhead.



Mentioned in Despatches

It was announced in a Supplement to the *London Gazette* dated Aug. 3 that the names of the following officers, warrant officers, non-commissioned officers, men and others have been brought to notice for distinguished service during the operations against Afghanistan by General Sir C. C. Monro, G.C.B., G.C.S.I., G.C.M.G., in his despatch dated November 1, 1919 (published in the Supplement of the *London Gazette* dated March 15):—

Royal Air Force

Capt. (actg. Maj.) CLOETE, D.M.C., A.F.C., 114th Sqdn.; Lieut. C. J. GUTHRIE, 114th Sqdn.; Lieut. (temp.) H. R. JUNOR, D.F.C.; Capt. D. F. MASSY.

52nd Wing.—No. 200909 Sgt. F. BELSHAW, 2/4th Bn., Oxf. and Bucks. L.I. (attd.); No. 201267 C.Q.S. H. D. DUNNING, 1/4th Bn., Dorset R. (attd.); No. 2123 S.M. A. W. IVEY; No. 8437 Cpl. (actg. Sgt.) W. WITCHER.

No. 31 Sqdn.—No. 12239 Flt. Sgt. G. E. HOWARD; No. 7800 Sgt. F. M. MACDONALD; No. 18105 1st Cl. Aircraftsman E. OLD; No. 78925 Sgt. T. L. WISEMAN.

No. 114 Sqdn.—No. 20116 1st Cl. Aircraftsman J. H. BAKER; No. 132271 1st Cl. Aircraftsman S. BUTLER; No. 147306 2nd Cl. Aircraftsman A. DAWES; No. 407606 2nd Cl. Aircraftsman A. L. JAYNES; No. 4311 Sgt. W. F. LEWIS; No. 1555 Sgt.-Maj. J. NEW; No. P.-265619 Sgt. N. F. SEDGWICK.

Roll of Honour

It was announced by the War Office on August 3 that the following officers, previously reported missing, are now reported killed:—

Lieut. J. O. Whiting, R.F.C.
Sec. Lieut. C. O. Godwin, R.F.C.

League of Nations Armaments Commission

THE Permanent Armaments Commission of the League of Nations, at its recent meeting at San Sebastian, appointed the following presidents of three sub-commissions: Military,

General de Cenninck (Belgium); Naval, M. Francisco Novos (Brazil); Aerial, Group Captain Groves (Great Britain). The next meeting of the Armaments Commission of the League and of the Aerial sub-commission, will take place in Paris.

R.A.F. Cadetships

THE following are declared by the Civil Service Commissioners to be the successful candidates at the competitive examination held in June, 1920, for admission to the R.A.F. Cadet College, but their admission is conditional on their having passed the medical examination. A table of marks will be sent to each candidate as soon as possible:—

Name.	Marks.	Name.	Marks.
*Barnes, L. K.	11,608	Keey, E. C.	7,733
*Sealy, C. F.	10,600	Fleming, T. S. S.	7,223
Swales, N. R.	9,850	Coghill, J. A. C.	7,119
Vintcent, N.	9,471	*Stevens, C. H. A.	7,063
*Anson, C. O.	9,436	*Pakes, C. W. S.	7,029
Curry, W. J.	9,399	Reid, E.	6,936
Macfadyen, D.	9,388	Riccard, C. S.	6,930
Carey, B.	9,151	Schmidt, C. C.	6,911
Bruce-Bennett, V.	9,081	Hiddings, A. G.	6,676
*Healy, E. A.	8,716	*Dawson, W. L.	6,669
Caithness, J. E. S.	8,672	Bett, D. L. G.	6,546
*Musin, F.	8,054	Coventry, E. B.	6,546
*Pelly, C. B. R.	7,762		

* These candidates have received marks for military efficiency.

An M.P. Parachutes

IN order to get practical, first-hand information as to the value and efficiency of life-saving parachutes, Mr. Baldwin Raper, M.P. for East Islington, N., on August 5, dived from a Handley Page aeroplane when flying over Cricklewood at a height of 600 ft., and with the aid of his "Guardian Angel" parachute landed safely on the ground. Mr. Raper, who, it may be recalled, served during the War in the R.A.F., weighs more than 15 stone, and the descent occupied nearly 40 seconds.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

FLYING SERVICES FUND

A MEETING of the Flying Services Fund Committee was held on Friday, July 30, 1920, when there were present:—Group-Captain C. R. Samson, C.M.G., D.S.O., R.A.F., in the Chair, Lieut.-Col. A. S. W. Dore, D.S.O., Mr. Chester Fox and the Secretary.

Applications for Assistance.—Forty-nine applications for assistance were considered, and grants and allowances voted amounting to £751 5s. 6d.

RACING COMMITTEE

A Meeting of the Racing Committee was held on Wednesday, August 4, 1920, when there were present:—Group-Captain C. R. Samson, C.M.G., D.S.O., R.A.F., in the Chair, Mr. G. B. Cockburn, Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., Col. F. Lindsay Lloyd, C.M.G., C.B.E., and in attendance B. Isaac, and H. E. Perrin, Secretary.

The question of holding a further Race Meeting this year was discussed.

COMMITTEE MEETING

A Meeting of The Committee was held on Wednesday, August 4, 1920, when there were present:—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., in the Chair, Major-General Sir Sefton Brancker, K.C.B., Mr. Ernest C. Bucknall, Mr. G. B. Cockburn, Col. F. Lindsay Lloyd, C.M.G., C.B.E., Lieut.-Col. F. K. McClean, Lieut.-Col. J. T. C. Moore-Brabazon, M.C., M.P., and the Secretary.

Election of Members.—The following New Members were elected:—

Major Charles Francis Abell.
Hon. Capt. Charles Bernard Bond.
Major Charles Noble Draper, R.A.S.C. (S.R.).
Eric Thomas Haulton Ellis.
Henry Peter Henry.
Flying Officer Robert Fredrick Charles Metcalfe, R.A.F.
Stanley Claude Peacock.

Temporary Honorary Membership.—Lieut. John Jay Ide, U.S.N.

Fédération Aéronautique Internationale.—The Conference of the F.A.I. will be held at Geneva on September 8, 9 and 10 next, and the Club will be represented by Lieut.-Col. Mervyn O'Gorman, C.B., Lieut.-Col. F. K. McClean, Lieut.-Col. J. T. C. Moore-Brabazon, M.C., M.P., and H. E. Perrin, Secretary.

Flying Services Fund.—The report of the Meeting of the Flying Services Fund Committee held on July 30, 1920, was received and adopted.

British Record.—The following British Record was passed:—

CLASS "C" No. 4.b. Greatest Speed Over a Straight Line Course of One Kilometre (Fédération Aéronautique Internationale)

Type .. Nieuport L.S. 3.
Constructor The Nieuport and General Aircraft Co., Ltd., London.
Motor .. 340 h.p. A.B.C. Dragonfly I.A.
Pilot .. L. R. Tait Cox.
Place .. Martlesham Heath, Suffolk.
Date .. June 17, 1920.

Greatest Speed (being the mean speed of four runs in accordance with the Regulations of the Fédération Aéronautique Internationale):

267.7 Kilometres per hour (= 166.4 Miles per hour).

Aviators' Certificates.—The following Aviators' Certificates were passed:—

7876. (Hydro-Aeroplane) Alfred Cuckson Meredith, Nov. 7, 1918.
7877. Arthur Robert Cole Holland, June 13, 1920.
7878. Cyril Ralph Catesby, June 22, 1920.
7879. Miss Imelda Mary Trafford, June 24, 1920.
7880. Frank Crossley Broome, Dec. 27, 1917.
7881. Thomas Henry Andrew Vivers, May 2, 1918.
7882. John Eric Hartley Bibby, Oct. 11, 1916.
7883. Edward Douglas Whitehead Reid, July 27, 1920.
7884. Leonard Gorrings, July 31, 1920.

Flying Machines for the Use of Members

The Club has arranged with the Aircraft Disposal Co. for the exclusive use of six flying machines for the Members. The following types are included in these machines:—Sopwith Pups, Avro, B.E.2d and Armstrong-Whitworth. These machines will be kept at the Handley Page Aerodrome, Cricklewood, and will be available for use by the Members in about a fortnight's time.

The fees payable will be £5 per hour flying time, inclusive of petrol and oil and insurance, with a minimum payment of £2. Full particulars will be issued later. All enquiries relating to hiring should be addressed to the Club.

Jacques Schneider Race

The Race for the Jacques Schneider Cup has been postponed until September 18 and 19, 1920. The Royal Aero Club is offering additional Prizes of £250, £150 and £100, to be awarded respectively to the British Competitors completing the Course, in the order of their official placings.

Gordon Bennett Aviation Cup

This Race will be held at Etampes on September 28 next. It is hoped that Great Britain will be represented by three Competitors, and the names will be announced shortly.

Offices: THE ROYAL AERO CLUB,
3, CLIFFORD STREET, LONDON, W. 1.
H. E. PERRIN, Secretary.

AIR MINISTRY NOTICES

Passage-Money for Overseas Airmen

THE Air Ministry makes the following announcement:—Approval has been given for the extension to August 31, 1920, of the time within which applications can be lodged for refund of passage-money to individuals who came from abroad before September 30, 1916 (February 15, 1916, in the case of South Africa), to serve in the War, provided the applicants in question were prevented from submitting their claims previously owing to:—

- (a) their actual engagement in military operations in distant parts of the world since the Armistice; or to
- (b) incapacity due to wounds or sickness contracted on active service.

All applications must be accompanied by a statement (if possible certified as correct by the officer commanding the unit) showing the circumstances in which the applicant was prevented from rendering his claim by October 1, 1919.

Danger Zones at Croydon Aerodrome

It is hereby notified:—

Pilots and others using the London Terminal Aerodrome

at Croydon, Surrey, are warned that certain construction work is in progress on the aerodrome.

It is dangerous, therefore, for machines to land on or taxi across these parts of the aerodrome.

"Danger" areas are marked by flags during the day and by white lights at night.

(Notice to Airmen No. 84.)

Flying of Kites and Kite-Balloons at Howden (Yorks).

It is hereby notified:—

Arrangements have been made for kites and kite-balloons to be flown at the aerodrome at Howden (Yorks), for the purpose of making meteorological observations.

Pilots flying in the neighbourhood of Howden should therefore keep a careful lookout, as the wire of the kite and the cable of the kite balloon constitute a danger to aircraft.

In cloudy weather, aircraft should avoid Howden, except when arrangements have been made beforehand with the Air Officer Commanding R.A.F., Airship Base, Howden, for the kites or kite balloon not to be flown.

(Notice to Airmen No. 85.)

AERO-ENGINES AT THE CRYSTAL PALACE

Some Developments and Greater Possibilities

BY ARTIFEX

ONE regards the already considerable and important display of aero-engines at the Crystal Palace War Exhibition with mixed feelings. So far as it goes, it is an admirable effort. At the moment, there are some forty-two examples of British and Allied makes alone, and at a rough count very few less of German production. One would not deny that some of them, on either side, are representative of "current practice," if the term be admissible twenty months after the armistice; but even they, with the rest, indicate the past, hardly even present developments.

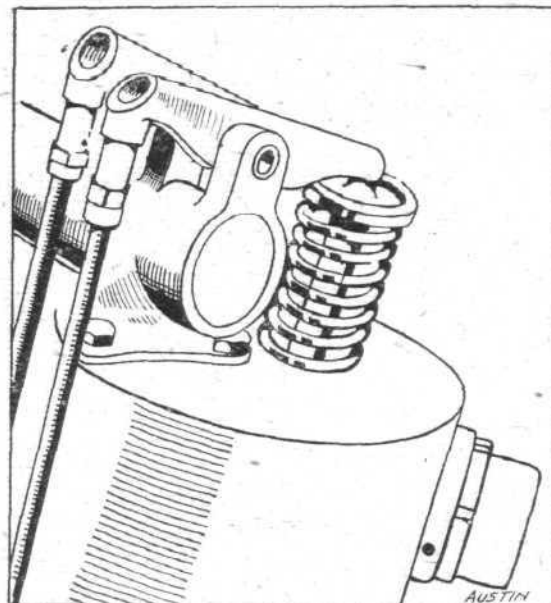
One would be sorry to think that this present effort were complete. It is so admirable that it should be encouraged further by all possible means. One understands that it will be four years before any possibility of moving the exhibition from the Crystal Palace can arise. That is fortunate, for there is space enough for three times the number of aero-engine exhibits to arrive, and be staged.

One would like to suggest therefore that the most should be made of this opportunity, while it is still in the making, so that this exhibition of aero-engines shall be made a live and current display of development, instead of becoming merely the dead memorial of yesterday's triumph.

However, it is not with all that might, should, and—with a little effort and public spirit—can be, but what is, that one is the more concerned for the moment. On the British and Allied-country side the largest and most powerful is the 400 h.p. Napier-Lion—which was fully described in *FLIGHT* of August 21 last—with the Rolls-Royce 350 h.p. 12-cylinder "Eagle" and the smaller "Falcon": two Sunbeam-Coatalen 300 h.p. "Manitous," a 250 h.p. "Maori," and others of 225 and 150 h.p. of the same make. An Austin "twelve" of 250 h.p.—hitherto unseen—two Curtiss "eights" of 160 and 100 h.p.; a 200 h.p. Hispano-Suiza; a 200 h.p. Clerget; a 100 h.p. Wolseley, a 100 h.p. G.N.V. and two 100 h.p. and 90 h.p. air-cooled R.A.F.'s, all representing Vee type construction, and with the exception of the Clerget, of design long since familiar to *FLIGHT* readers. Of the verticals—all "sixes"—the most powerful is the 250 h.p. S.P.A.; the others being the two Siddeley "Pumas" of 240 and 230 h.p., two Beardmores of 160 and 120 h.p.; two Greens of 100 h.p. and 60 h.p.—the latter the original four-cylinder model, and another four-cylinder A.B.C. of about 40 h.p. Static radials are represented by the 320 h.p. nine-cylinder A.B.C., the 140 h.p. vertical and the 135 h.p. horizontal Canton Unné, but nothing larger of that make; and by three comparatively small Anzani's, of ten cylinders and 125 h.p., six and 60 h.p. and three and 30 h.p. On the other hand the largest rotary is the comparatively new Bentley of nine cylinders and 250 h.p., the next being the 170 h.p. Le Rhône, with two of 100 h.p., one of them sectioned out; two 100 h.p. Gnômes—one of them the "monosoupape"

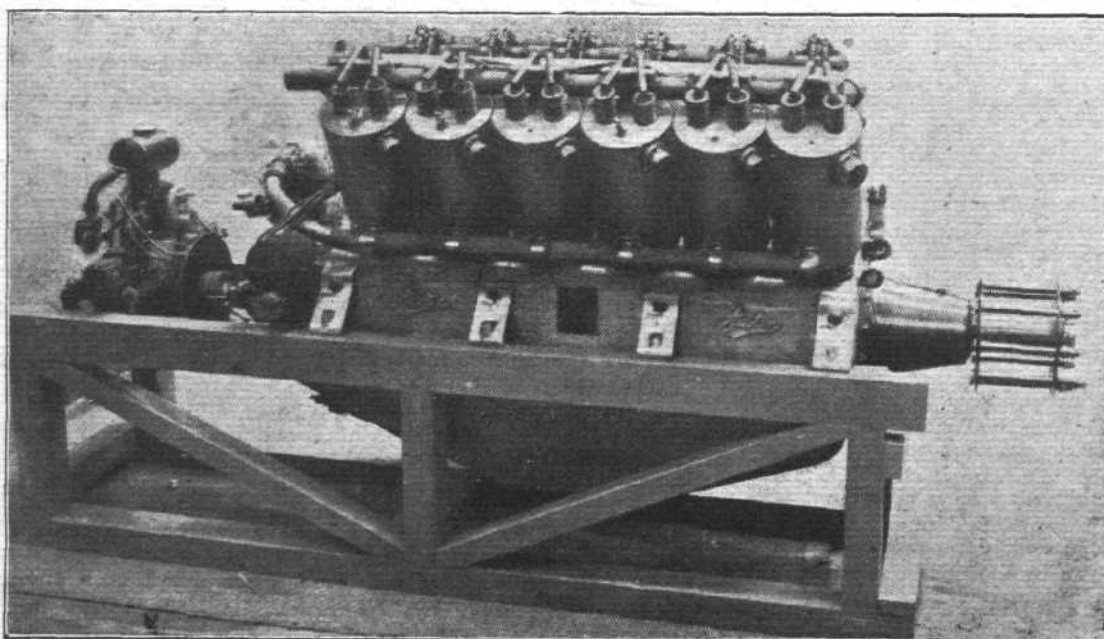
—with two others of 75 and 50 h.p. and an 80 h.p. Clerget: this section being completed with America's chief effort in rotary design, the piston-valved two-stroke seven-cylinder Gyro of some 50 h.p. and the horizontally opposed two-cylinder 28 h.p. Nieuport of the Eastchurch Gordon-Bennett type. Needless to say, with the exception of the A.B.C. and the Bentley, none of these last, radials or rotaries, represent anything but school-machine strength, much less even pre-War developments.

Nor, with the exception of the 200 h.p. Clerget "eight," the Austin "twelve," and the Bentley, are the details of any

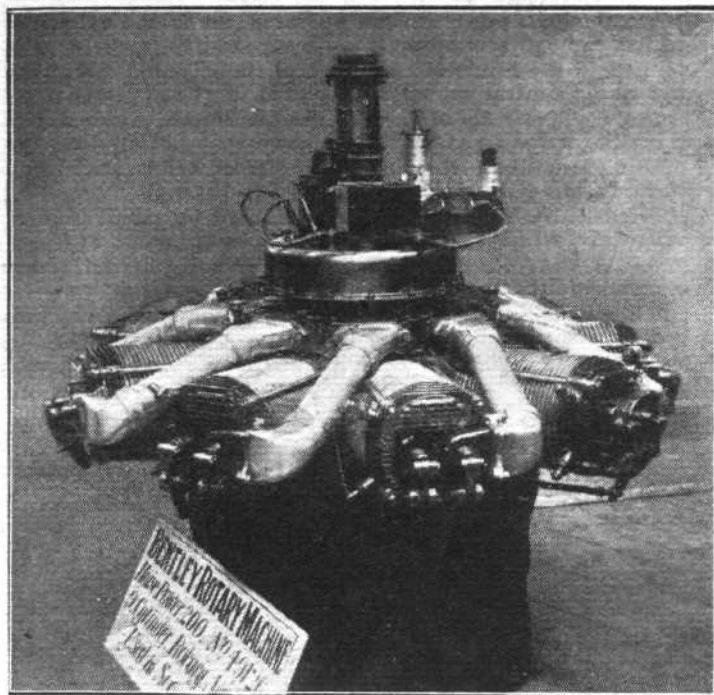


Valve gear detail of the 250 h.p. Austin "Twelve": the feature of which is the clever manner in which the water-outlets are formed to make a line connection and carry the valve-rockers, which are hollowed for lightness and lubrication with thick oil

one of them sufficiently unfamiliar to *FLIGHT* readers to make description necessary. Indeed, without having seen the latest Clerget and Le Rhône developments as to valve-gear, and so writing under correction from memory of their respective mechanisms up to the mid-War period, one would say that their only point of interest was the difference in their rendering of the same working principle: that of the combined eccentric

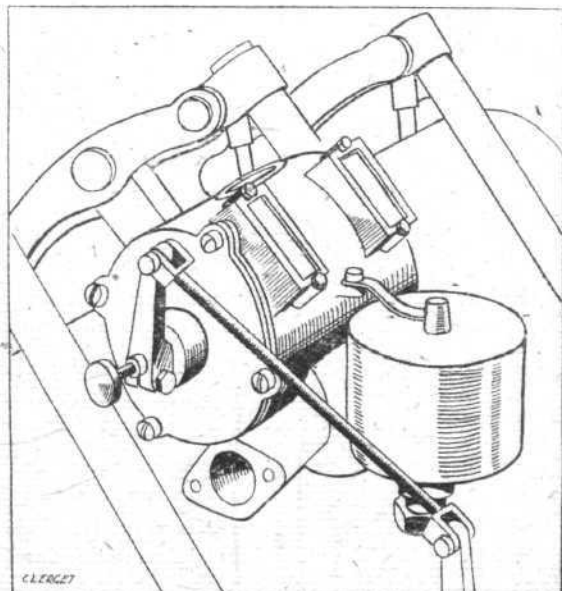


The 250 h.p. twelve-cylindered Austin engine: A certain mass resemblance to Green practice will be noticed, with many important detail differences. The starting-motor behind is an A.B.C. Twin



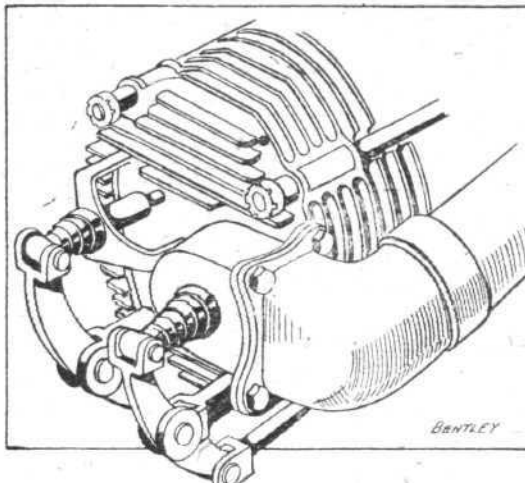
BRITAIN'S BIGGEST ROTARY : the 200 h.p. nine-cylindrical Bentley. Also reminiscent of other designs in some detail, but different and better as a whole. The tangential induction from a central gas-drum is a feature

throw and frictional rotation of a ring spun on the finger : effected in the case of the Le Rhône, by the throw and rotation upon a spur gear eccentric to the shaft centre of an internally toothed gear ring to which the cam-plates were bolted ; while in the Clerget, a three-point star-piece, likewise eccentric, made a more gradual rotational contact with alternate recesses in a ring-plate, with infinitely less peripheral velocity and friction. And as this is a point which is rightly more respected in British practice, one imagines from the disposition and relative angle of the tappet rods from the mass, in the Bentley, that a plain roller contact with a group of cams, has been made to suffice, with probably greater durability : for the example is exhibited by accident or design the wrong side upwards for any internal detail to be seen, either of the valve gear or the method of connecting-rod assembly. No more can the detail of the induction be fully seen : but it is evident that while the valves are set in along the circumferential line of the detachable cylinder heads—which are colonette-bolted to the crank-chamber—much as in Clerget practice, the induction pipes rise to the inlet valves, from a mixture drum, as in the Esnault-Pelterie and one or two Italian rotaries, but tan-



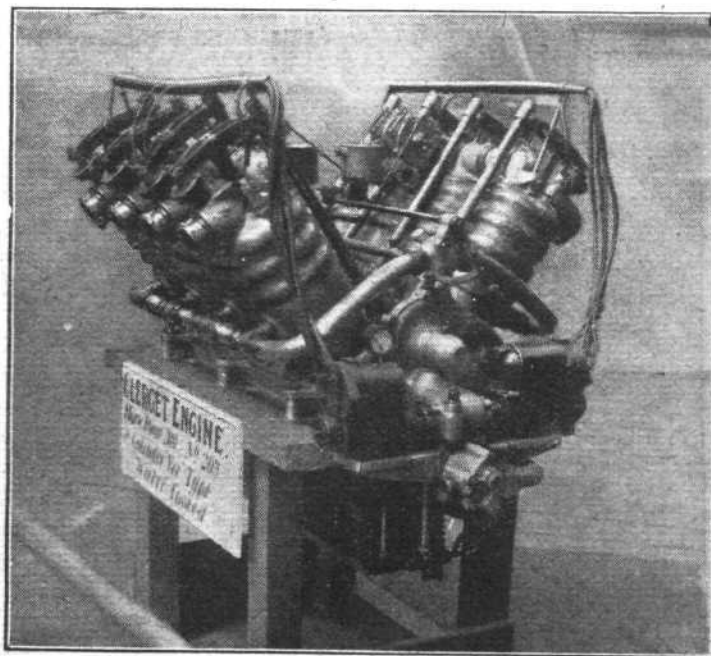
The special Clerget carburettor, in which the drum-throttle opens the extra air screened-panels—seen midway—to impoverish the rich mixture from a single jet

gentially from the drum, counterwise to that extent, to the rotation of the motor, thus assisting its fuller charging. Both valves are carried by the same sort of volute-type band-spring ; which in the case of the exhaust is seated upon a high tripod, well clear of the hot gases. In any case, what with the centrifugal action of this type of motor helping to seat the valves, the springs have little work to do, and of their kind would be more readily cooled and little affected by the exhaust gases, which run away from both, not over them.



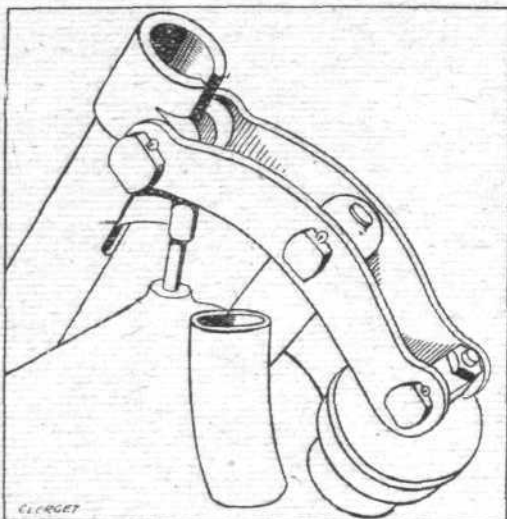
Bentley detachable head and valve-gear detail : Note the tripod seating by which the exhaust valve spring is held clear of the gas-stream, and the induction housing which fulfils the same result for the inlet valve-spring

Turning, however, to the Vee-type, which power-developments and the average higher "ceiling" of water-cooled engines have—for the time being at least—outpointed the air-cooled rotary and radial, the big Austin commands attention, not only for its size, but its practical and plain design. Its copper water-jacketed unit cylinders are reminiscent of the Green method, even to the attachment of the jackets by clamping rings screwed upon the ports, spark-plug insertions, etc. The differences are that the induction is through a plain "shorehaul" manifold from two carburettors aft, instead of fore and aft through omnibus tubes : and that the valves, instead of being staggered and actuated from overhead cam-shafts, are set vertically in line ahead, and operated by hollow drilled rockers inclined towards each other, so as to bring together their tappet rods rising from a single central cam-shaft.



THE 200 H.P. CLERGET : In some respects the gem of the collection, as, apart from its clever detail design, it is half the size for its power of any other of its type. The mass feature is the appearance of monobloc formation given by the moulding of the unit-mounted cylinders

The blocks in which these rockers are pivoted are cleverly contrived, by hollowing, to serve as water outlets, rubber-hose connected into a single lead, in the same manner as the water-inlets below, which are served for the circulation by an Albany type spur-gear pump. Aft, two six-cylinder magnetos are platformed and driven, through the usual reduction from the crank-shaft extension; and further aft still, through a flexible sheathing, that extension connects to an A.B.C. starting motor. Unlike some Vee-types this Austin motor is well balanced as

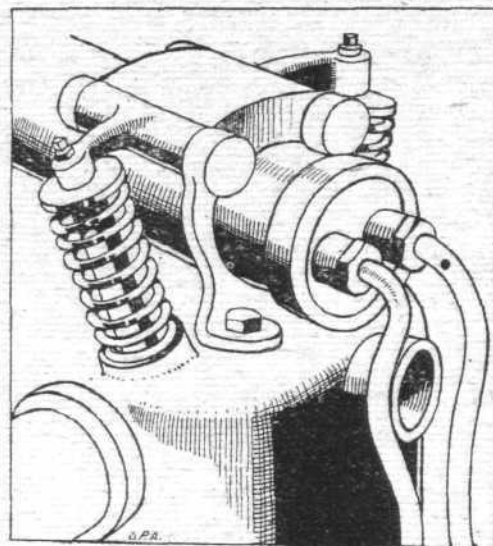


Valve gear detail of the 200 h.p. Clerget: Features are the yoke type construction of the rockers, and the concentric tappets; also the water outlet immediately above the exhaust valve-jacketing

a unit with a substantial crank-chamber moulding downwards into a very deep base-chamber, from which the lubrication is understood to be, as it should, force-fed throughout, by way of connecting-rods and all through the usual drilled leads. Normal speed is 1,500 r.p.m. geared down to 1,050 on the propeller; and the consumption is 18 gallons of petrol and 7 of lubricant, which works out at 0.58 pint and 0.22 pint per b.h.p.

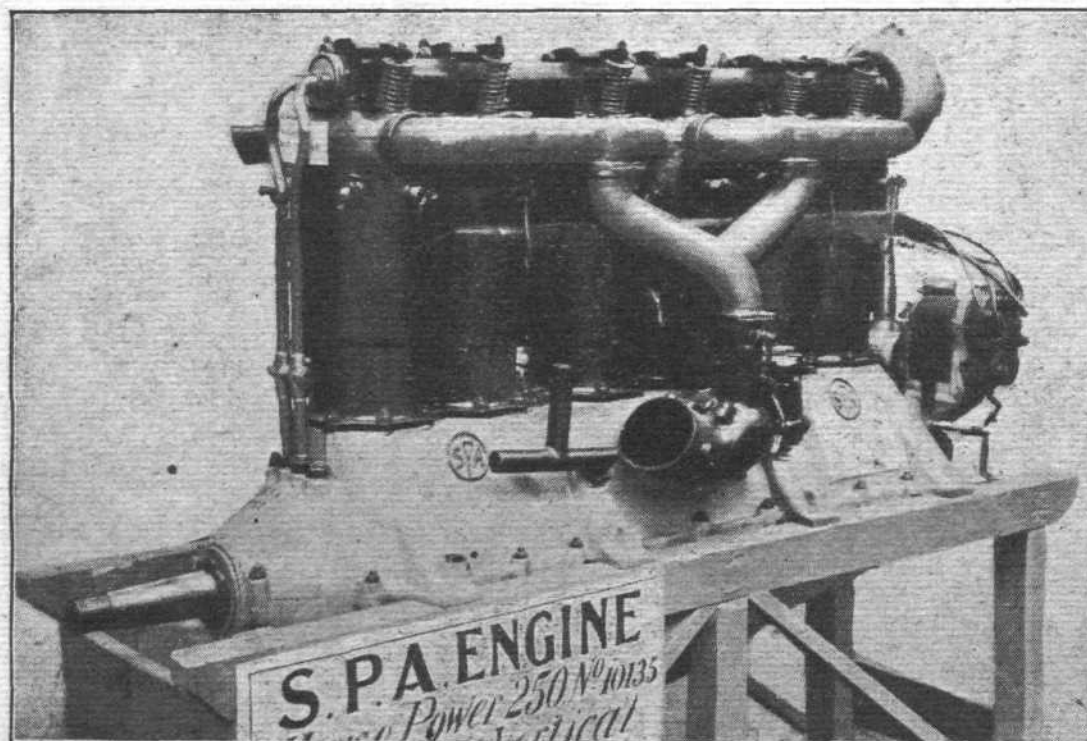
Of half the size for its 200 h.p. and in practically all points the gem of the collection, is the Clerget V. eight. It is certainly as compact as any monobloc of greater *réclame*; and its cylinder groups seem to be made in that fashion, until it is seen that the cylinders and their corrugated copper water-jackets are mounted as units, but have the jackets moulded so that the intermediates butt flush against the outwardly-rounded end ones, in a construction more certain and no less economical. The valve gear, valve arrangement and all pertaining thereto is quite as simple and accessible, and much cheaper than two overhead cam-shafts and separate drives:

as the valves, which are set in transversely and diagonally at the orthodox 15 degrees, are operated, as to the exhausts—which are on the outer line—by yoke-like rockers, yoke-pinned to the heads of tubular tappets actuated direct from the single central cam-shaft enclosed in the crank-chamber. But the upper ends of these tubes are slotted to let out the claw-like ends—to engage the inlet-valves—of pull-down rods within these tubes, which are again slotted below, at the sides, to let in the ends of rockers jointed to the rods, housed and pivoted in bronze castings, and actuated by risers from the cam-shaft, all in a manner somewhat reminiscent of Curtiss practice, but very much neater and actually lighter though more substantial. Actually—how rare in an aeromotor—it is possible to get out either valve without dismounting a cylinder bodily with all its related parts. One has simply in either case to detach first, the exhaust piping from its ring-nut attachment, and then the induction manifold in which all the inlet



Valve-gear detail of the S.P.A. 250 h.p. "Six": Note the manner in which the inner halves of the bell-crank-rockers are disposed within the neat tubular cam-shaft casing. Also the lubrication supply and return-pipes

valves are housed with their volute band-type springs, and lift out the inlet valve bodily with its seating, after which the faulty exhaust valve can be dropped and drawn through the inlet port. Incidentally, the exhaust valves are heavily water-jacketed, with the water outlets direct above each one. Butted close to each induction bar is a special carburettor with a single jet, delivering a rich mixture which is impoverished as the drum-throttle opens the second of two gauze-



Italy's sole example: The 250 h.p. S.P.A. six-cylindered engine. Apart from the cleanliness of plain modelling, this engine is refined down to a weight of 2½ lbs. per h.p. ready to run

screened extra air ports, simultaneously with its opening to the said induction bar, both throttles, of course, being interconnected to the spindle of a quadrant which is mounted upon the bronze T-union of the two water circulation inlet branches that run along the inside of the V and the main lead from the pump below.

As to the timing and distribution gear, the cam-shaft spur-wheel has a rearward bevel-face, engaging a horizontal bevel gear driving a vertical spindle. This spindle in the first place carries a helical gear-drive for the transverse spindle drive of the two platformed magnetos, then a bevel drive below that to the spur-type water-pump; and below again—where it emerges from the gear casing and is contained in a tube, bracket-attached to the crank-chamber—it drives a small spur-type oil-pump, which draws by outside piping from a deep air-cooled base-chamber, and returns the oil by distribution piping to the bearings, thence force-feeding throughout by leads in the crank-shaft and connecting rods to all interior surfaces.

The 250 h.p. six-cylinder S.P.A. appears to bear out all the reputation of its makers as a thoroughly sound job. But its design, so far from representing any such advance as is seen

in some of the latest Italian models, appears to belong to the style of 1917-18 rather than anything later, and thus to take after the German practice of that time. Thus one sees the cylinders cast in pairs, with tripartite induction from two Zenith carburettors, and welded steel water-jackets, a detail which is only one of many in which this motor has been so cleverly lightened without reducing its strength, so that it only weighs 1 kilo per h.p. The valves are set diagonally in the head at about 10 degrees and actuated by rockers of bell-crank angle, neatly half-concealed within the tubular casing of the overhead cam-shaft, to which the oil is fed and returned by way of the copper-pipes at the front end, rising out of the crank-chamber from the distribution system within. The vertical drive-shaft, through two bevels of a train of four, drives transverse magneto spindles, behind which the fourth bevel drives a centrifugal water pump, while the oil-pump—which is also of the centrifugal type—is driven direct from the crank-shaft end at engine speed, and through outside connections, draws from leads inside the base chamber direct from the central sump, and delivers the oil to all bearings.

(To be Continued)

Personals

Deaths

Flight-Lieut. MICHAEL JULIAN ORDE, aged 32, who was killed in an accident on Salisbury Plain, on August 5, was the son of Sir Julian W. Orde, Secretary of the Royal Automobile Club, of Hareford House, Beaulieu, Hants. Lieut. Orde, who served in the R.F.C. during the War, was shot down and taken prisoner by the Germans.

Flying Officer ROBERT DANIEL CECIL PALMER, D.F.C., who was killed in Mesopotamia on August 2, was the dearly-loved son of Mrs. Caroline Dudley Palmer, of St. Leonards-on-Sea, aged 22.

Married

WILLIAM SHEPHERD ALLEN, R.A.F., only son of W. Allen, Esq., J.P., of Woodhead Hall, Cheadle, Staffs, was married on July 28 at Winchester Cathedral, to CLARA ELEANOR, only child of the late HENRY GODWIN JOHNSON and of Mrs. Johnson, Longclose, St. Cross, Winchester.

Their Majesties Inspect Seaplane Works

ON Sunday afternoon, the King and Queen, Princess Mary and the Duke of York, attended by the Marquise D'Hautpoul, Sir Charles Cust and Admiral the Hon. Sir Hubert Brand, visited the seaplane, motor-boat and motor-car works of Messrs. Saunders and Co. They were received by Mr. S. Saunders, the head of the firm, and his son Mr. Herbert S. Saunders, and first visited the aircraft sheds, where they inspected the "Kittiwake," the Saunders amphibian, built for the Air Ministry Trials, and entirely constructed on the "Consuta" system of plywood sewn together. Motor-car bodies made in the same way were also seen, and then, motoring to the Cornubia yard, the two racing motor-boats, "Maple Leaf V" and "Maple Leaf VI," built for Sir Mackay Edgar to defend the British International Trophy in this week's race, were inspected.

Their Majesties were shown several motor-boats, which are being built in large numbers for British and foreign customers, and also inspected two large Valencia armed flying boats, building for the Air Ministry. Each has a capacity of about 9 tons, and carries a shell-throwing gun.

The King and Queen expressed their sincere thanks to Mr. Saunders, saying how deeply interested they had been in all they saw.

Cancelling Flax Control

THE Minister of Munitions has issued an order, to be cited the Flax Control (Cancellation) Order, 1920, by which the following are cancelled:—

Flax (Irish Crop) Order, 1917; Spun (Flax) Yarn Order, 1917; Flax (Irish Crop) Order, 1918; Rescutched Tow Order, 1918; Rescutched Tow No. 2 Order, 1918; Flax (Irish Crop) Order, 1919; and Flax (Irish Crop) Amendment No. 2 Order, 1919. The cancellation takes effect on August 31.

LORD MONTAGU OF BEAULIEU was married on August 10 at St. Margaret's, Westminster, to PEARL, daughter of the late Major E. B. CRAKE and Mrs. BARRINGTON CRAKE. The Rev. R. F. Powles, Vicar of Beaulieu, officiated, and Lord Forster was best man. A reception was held at 25, Belgrave Square, lent by Sir Charles and Lady Seely.

Capt. COLVIN LAURENCE, D.S.C., late R.A.F., youngest son of Mr. and Mrs. F. Laurence, of Half Yoke, Maidstone, was married on July 27 at St. Paul's, Knightsbridge, to Lady SYBIL STOPFORD, eldest daughter of the Earl of Courtown.

Ft.-Lieut. C. H. B. JENNER-PARSON, R.A.F., younger son of the late Charles Jenner-Parson, M.D., of Godalming, Surrey, and Mrs. Fleming, of 2, St. Helen's Towers, Southsea, Hants, was married on July 21 at St. Peter's, Owsden, Suffolk, to Miss VIOLET MACKWORTH-PRAED, only daughter of the late Robert Herbert Mackworth-Praed, of Mickleham Downs, Surrey, and of Mrs. Mackworth-Praed, of Dalton Hill, Albury, Surrey.

A Scottish Aerial Derby

A PROPOSAL is on foot to organise a race on Aerial Derby lines over a 100 miles' course, taking in Edinburgh, Glasgow and Stirling. The route proposed is a triangular one, from Turnhouse aerodrome, circling the flying ground at Renfrew, then round Stirling and back to Turnhouse. It is anticipated that there will be a good entry and further details will be awaited with interest.

By Aeroplane to see the Prince

HOPING to catch a fleeting glance of the Prince of Wales before his departure southwards, Mr. Fihelly, ex-Premier of Queensland, arranged to travel by aeroplane to the border. He left Brisbane at 9 o'clock in the morning, but a forced descent at Warwick, two-thirds of the way, caused him to miss the train. He flew into New South Wales with the hope of picking up the Prince at the first stopping-station, but was too late.

R.A.F. Memorial at Walmer

A MEMORIAL erected at Walmer Aerodrome by Lady Beauchamp to fifteen officers of the Royal Air Force who served at the aerodrome and lost their lives in the War was unveiled on August 7 by Air Commodore C. L. Lambe, C.M.G., D.S.O., and dedicated by the Chaplain-in-Chief of the Royal Air Force. A letter was read from the Duke of York expressing sympathy with the relatives "of the gallant men who gave their lives for their country and Empire in the service to which I have the honour to belong." Lord Beauchamp (Lord Warden of the Cinque Ports) took part in the ceremony, and others present included:—

Lord and Lady George Hamilton, Lady Helen Grosvenor, Lord Elmley, the Ladies Lettice, Sibell, Mary, and Dorothy Lygon, daughters of Lord Beauchamp, Lady Sargent, and Sir William Pearce, M.P., and Lady Pearce.

NAVAL ARCHITECTURE IN AERONAUTICS

By **JEROME C. HUNSAKER, Eng.D.,** Commander, Construction Corps, U.S. Navy

(Concluded from page 868)

Abstract of Appendix V

The Model Basin.—Naval architects first came into aeronautics in connection with seaplanes. The aeroplane was developed before the seaplane, and at first the great problem was to design the boat or float so that the seaplane could actually leave the water. The early attempts were rarely successful, and it was not until a satisfactory form of planing bottom had been developed by model experiments in the towing basin that any consistent success was had. The contribution of the model basin to aeronautics is too well known to be gone into here. Existing methods and apparatus which had been developed for the study of the resistance of ships were immediately available so soon as it could be demonstrated that Froude's law of corresponding speeds applied to the planing action of flying boats. Such a verification was soon demonstrated by the successful performance of seaplanes designed from the results of model tank experiments.

It is now possible to test in the tank, at small expense and no risk, any proposed form of planing hull, and to determine whether or not such a hull is worth constructing full scale. It is, therefore, possible to eliminate a great many types which would prove to be disappointments, and it is also possible to experiment with a great variety of minor modifications in form to determine the effect upon general behaviour of these modifications. As a result of the last four years' work at the experimental model basin at the Washington Navy Yard by my colleagues, Commander Richardson and Commander McEntee, two forms have been developed which for general purposes we have found superior to the others. One is a pontoon which has been used on single and twin float seaplanes and the other is a form of hull which was used for the N.C. flying boats. These forms may not be the best known, as regards resistance or any other single feature, but have proved of all-round utility. With the permission of the Chief Constructor, I am giving the lines and resistance curves for these models in the fifth appendix as they are a very fair representation of the present state of the art.

It will be noted that these forms are both what is called "vee bottom," and although this form of bottom behaves well in rough water and reduces the shock of landing, it is objectionable on account of the spray thrown out from the chine. For a twin float installation, this is often a serious matter, as the spray gets in the propeller and causes trouble. A recent scheme to protect the propeller from spray has been suggested by Mr. Grover C. Loening. For twin float machines he proposes floats with a bottom sloping outboard from the inner chine. This appears to eliminate all spray between the pontoons throwing it outboard.

The experiments in the towing tank record all those things which can be measured, but do not record the spray and wave formation. We have recently undertaken the study of the

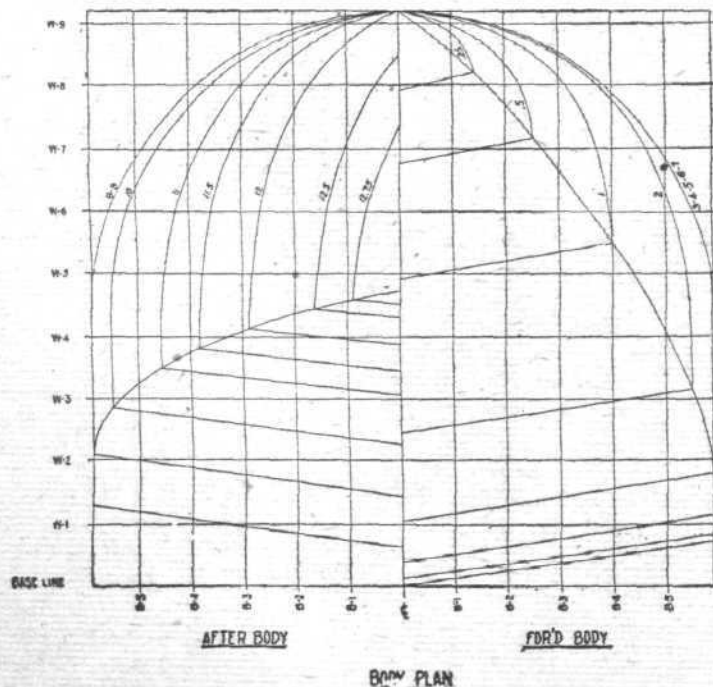


Fig. 1: Seaplane float. Model No. 2103-B

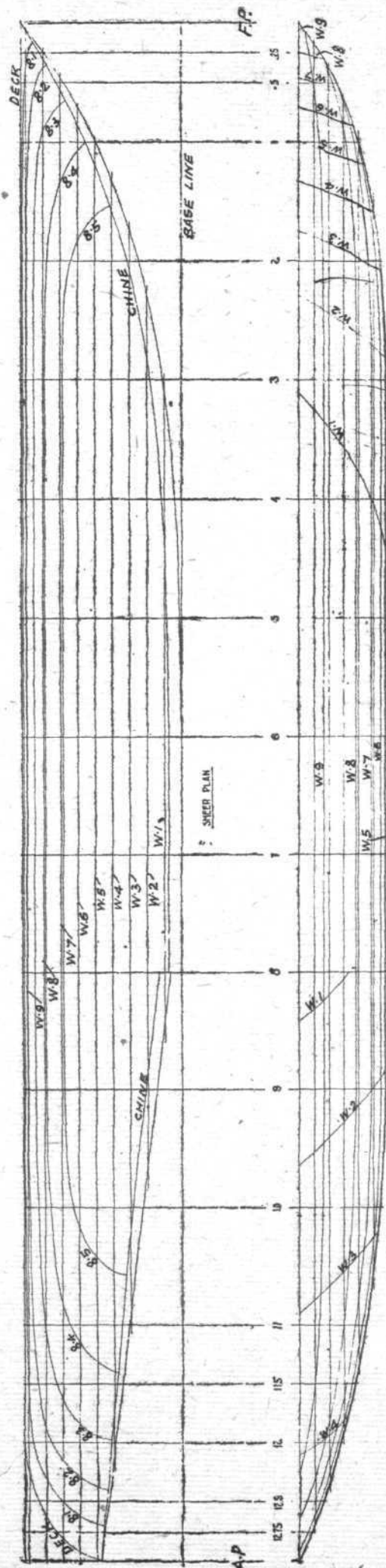


Fig. 1: Seaplane float. Model No. 2103-B

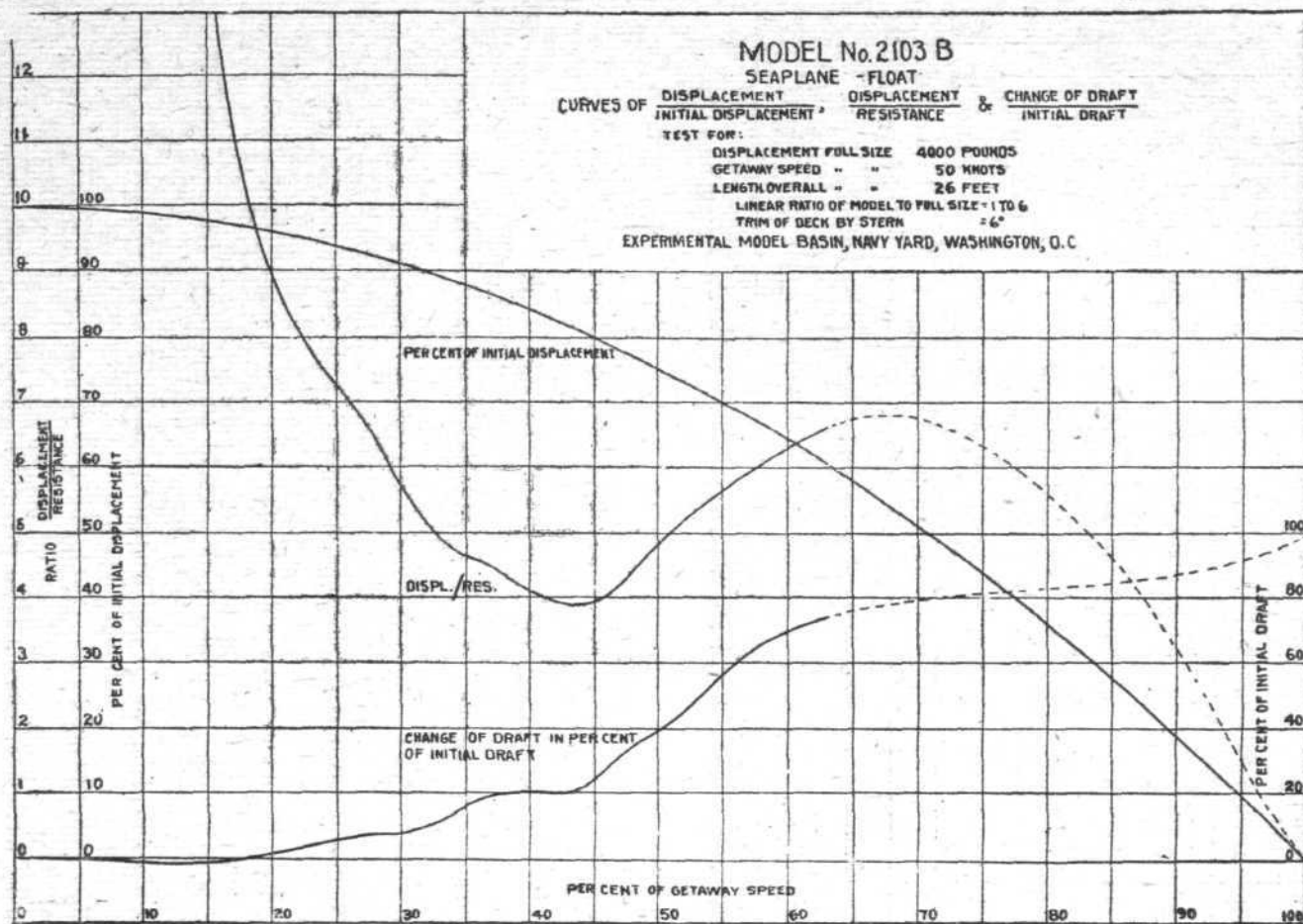


FIG. 2

wave formation which accompanies a planing boat by the use of an ultra-rapid motion picture camera, which takes pictures at eight times the rate of the commercial machine. When projected on a screen at ordinary speed (16 per second), this gives a view of the whole wave system to a microscopic time scale. This work is too new to warrant any conclusions from it, but I mention it as being a suggestive means of studying a very complex state of affairs.

An extension of the usual work of the model basin has led to the investigation of the strength of flying boat hulls to resist the shock of landing. For this purpose, accelerometers are mounted in the hull. Attempts to use the R.A.F. accelerometer were disappointing. This instrument had been used in the air for acrobatic flying with very satisfactory results, but it appears that the force at landing is too suddenly applied to be easily measured by this type of apparatus. Another type of accelerometer, developed by Dr. A. F. Zahm, has been used with very consistent results. This instrument depends only on the deflection of a series of light vertical springs by a series of masses, and gives a definite maximum.

With this instrument landings have been made in smooth water, and it appears that the vertical component is seven times gravity and the hori-

zontal component 2.5 times gravity. An R.A.F. instrument mounted alongside the Zahm instrument gave at the same time three times gravity and 1.7 times gravity, respectively. The large vertical components are noteworthy, and appear consistent with our experience where engine

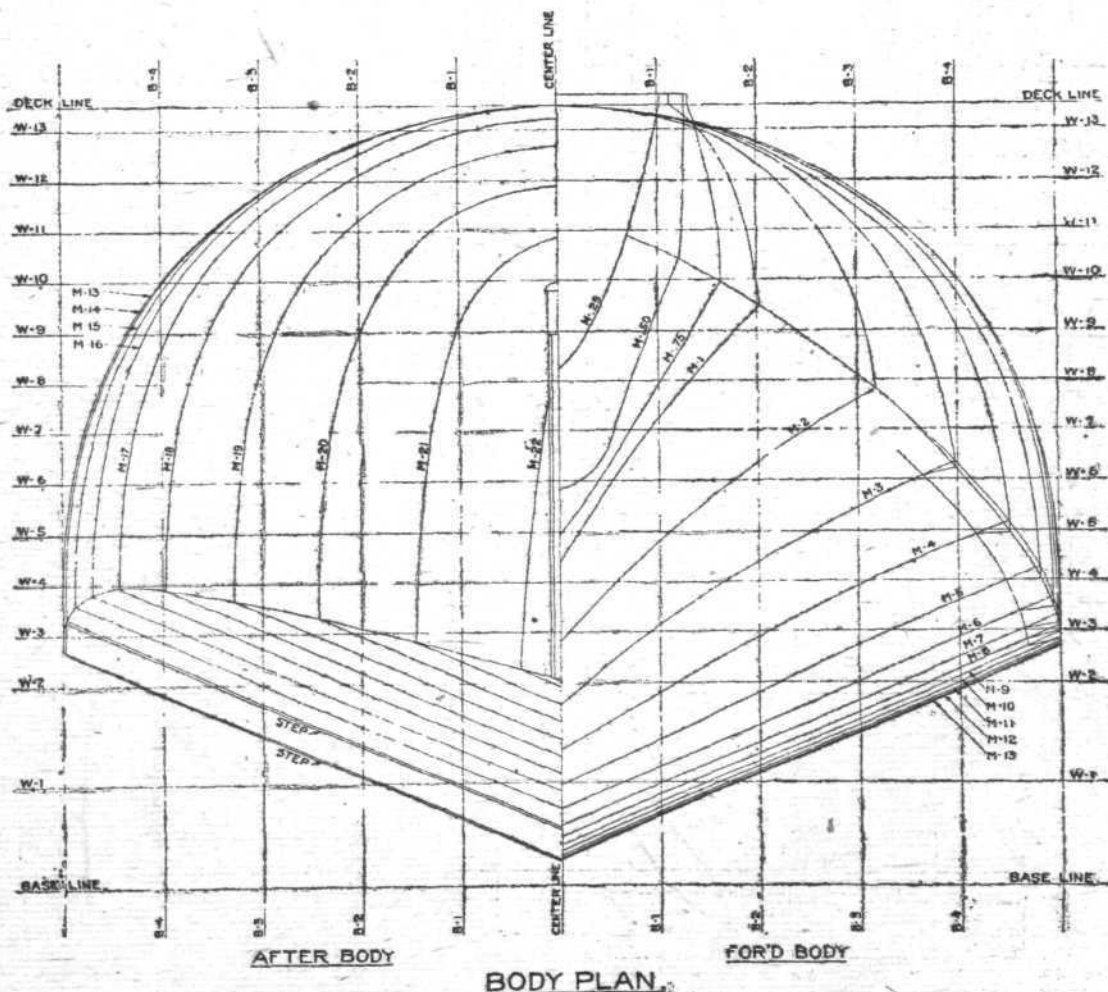


Fig. 3: Seaplane Boat. Model No. 2081 C

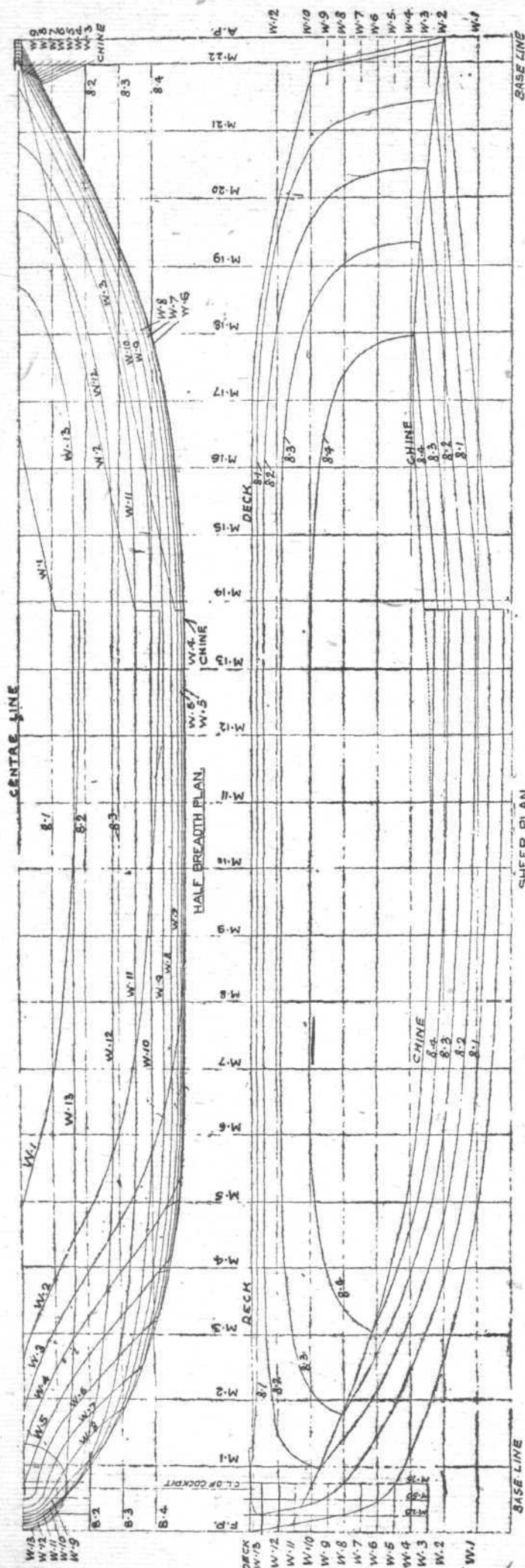


Fig. 3: Seaplane Boat, Model No. 2081C

foundations on flying boats and pontoon struts have failed, although they were designed for a load factor of eight.

Conclusion.—In this paper I have discussed in rapid succession five applications of naval architecture which could only be developed in detail in the appendices. Consequently I cannot expect to have demonstrated more than the existence of these methods of attack and to have advertised their utility. It will be noted that two principal methods only have been used.

The first is *analysis of experience* by means of a comparison of percentage weights, percentage of control areas, etc., for a large number of successful aircraft. Similarly an *analysis of experience* is attempted in the comparison of metacentric heights. Normand's method of differentiating a weight equation is also based upon experience, and the method will not attain its maximum value until weight statements for a great many more airships are available.

I cannot urge too strongly the general advantage to the art which would result from the full and frank publication of technical information regarding not only successful designs but failures as well. The failures in particular are priceless, but perhaps it is too much to expect of human nature that a post mortem on a bad design will see the light of day.

The second peculiarly naval architectural method used in aeronautics is *model experimentation*. A theory of similitude, geometrical, mechanical or dynamical, is used to apply model basin tests of boat hulls, wind tunnel experiments on aerofoils, and model propeller tests. Such a general use of similitude in design is unique in engineering practice, and forms the closest bond between the naval architect and the aeronautical engineer.

The *analysis of experience* is really a statistical method for which trustworthy data in quantity are necessary. Given the necessary information, the naval architects' methods not only reveal the past and present state of the art as represented by engineering coefficients and averages, but also show the trend of the more successful designs. In that way, future development can be predicted and the most promising directions for improvement.

To avoid leaving the impression that the naval architect is looking backward exclusively, I should like to take the opportunity to recall the astonishing success of the little airship built by Dupuy de Lome in 1872. This eminent naval architect attained by his professional skill the maximum success which the state of the mechanical art at that time permitted.

His little hand-propelled "Aerial Ship" exhibited all of the principal features of our modern non-rigids in their fundamental forms. Control and stability were correctly understood and provided for. An air-speed meter was also provided. The requirements of our modern theory of suspending a car below a non-rigid gas bag were met by his suspension system. A ballonet and blower were used in accordance with good practice. More remarkable still, Dupuy de Lome made the envelope of two-ply rubberised fabric and doped it with a very fair gelatine, glycerine, acetic acid varnish to make it tight.

I quote from a contemporary account:—*

"The stability was something marvellous; several persons moving about in the car at the same time did not produce any oscillation. A descent was intentionally made from 1,020 metres to 600 metres without making use of the ballonet. The folds on the balloon then became very marked, and it was interesting to observe the tension of the various ropes as they maintained the major axis of the balloon in a horizontal position.

"The complete agreement of the results of the trial with those foretold by the inventor will be obvious to everyone. Such an agreement, usually so rare, is the more extraordinary, as in this case all the bases of calculation had to be discovered.

"Henceforth aerial navigation may be said to possess a theory of stability and propulsion. The true history of ballooning will date from the 2nd February, 1872, a new era marked by the invention of the navigable balloon, and rendered illustrious by the name of Dupuy de Lome, so well known in connection with scientific progress and invention."

The name of Dupuy de Lome deserves to be remembered not only as the leading naval architect of his day, but also the first naval architect to apply his art to aeronautics.

In closing, I should like to express my appreciation of this opportunity to present before this society some of the later knowledge of the Navy Department in an effort to make at least a small return for the very valuable work which the Royal Aeronautical Society has done in publishing and distributing for the benefit of the art the best knowledge of British aeronautical engineers. My Chief, Admiral D. W. Taylor, Chief Constructor of the Navy, especially welcomed

* Leclert, "Naval Science," April-October, 1872.

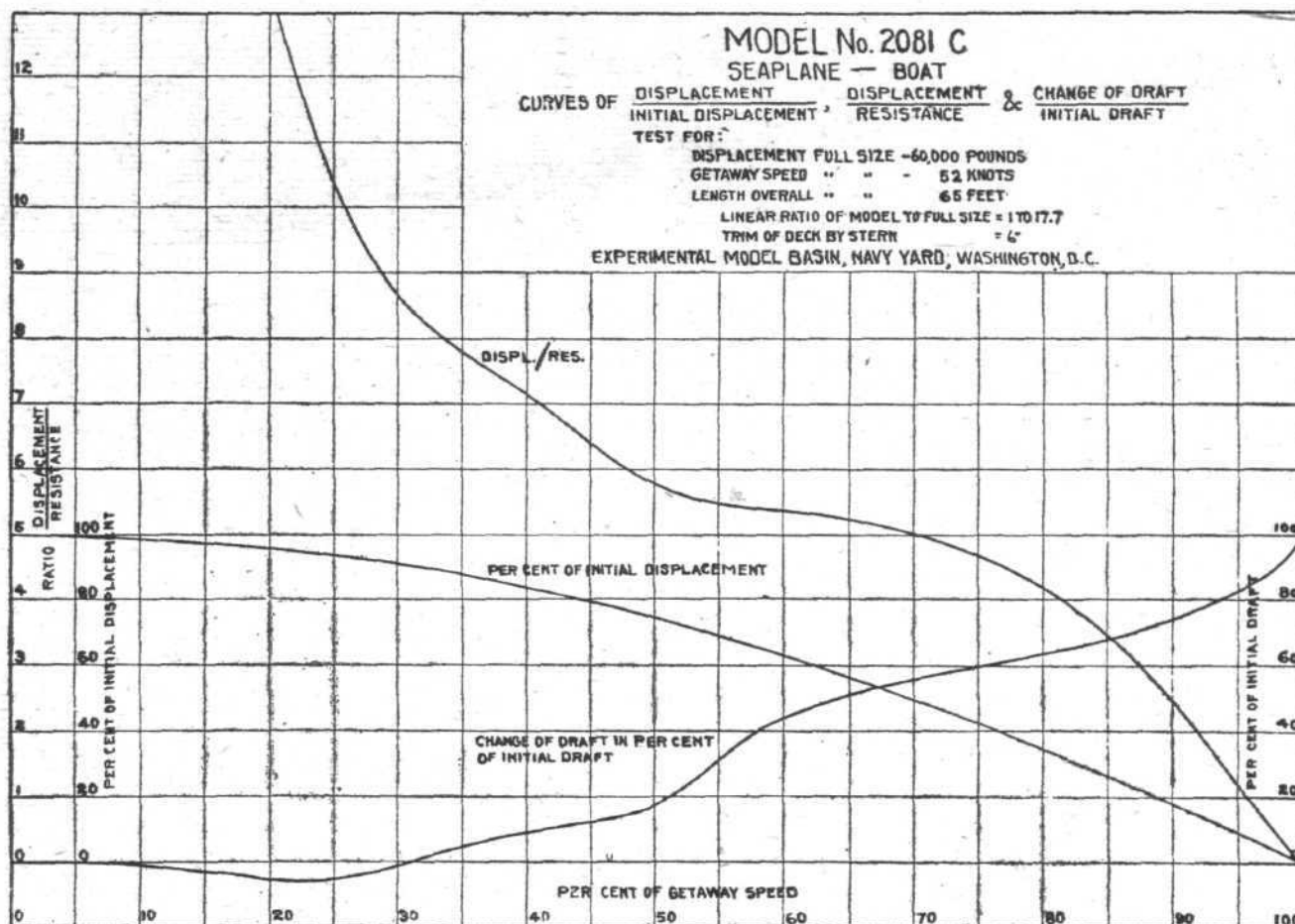


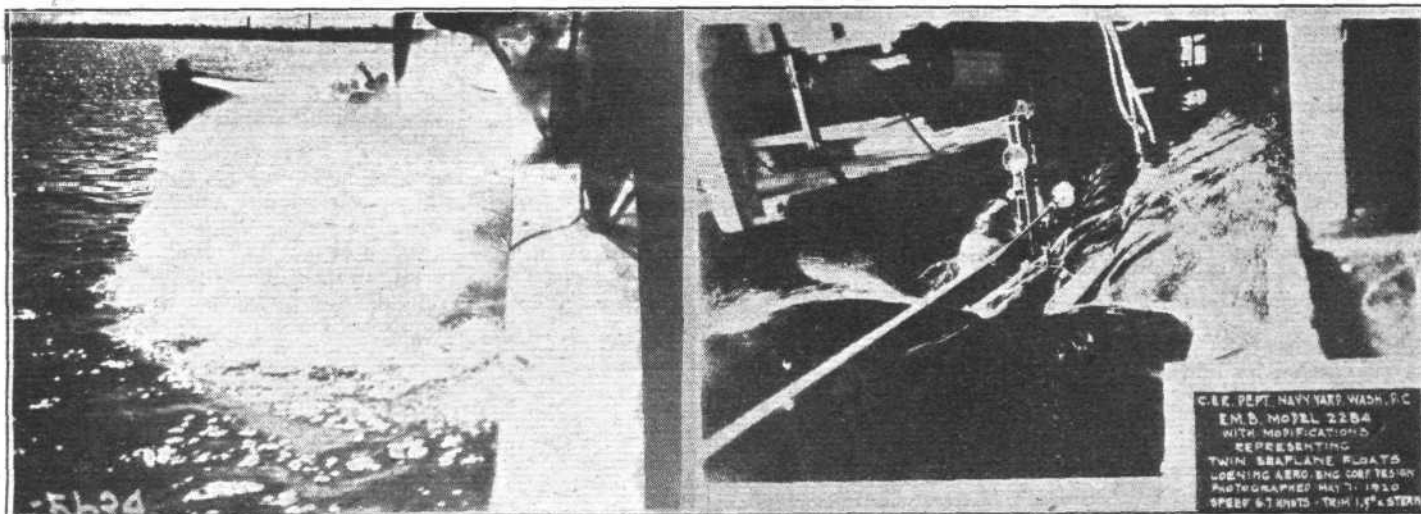
FIG. 4.

this continuation and extension of the cordial relations established during the War, and authorised me to disclose anything or everything of value in the possession of the Bureau of Construction and Repair.

The Secretary of the Navy is much pleased that an officer of the United States Navy has been invited this year to read

memorial to my countryman. This early recognition of the Wrights by this society has ample justification, for this very hall might not still exist to-night had not Wilbur and Orville Wright's invention been overhead to protect it.

In honouring Wilbur Wright, we meet on a common ground. Friendly relations between our countries will be furthered



Photograph of a full-size flying boat, showing spray

Photograph of model of Loening twin floats under test

the Wilbur Wright Lecture, and desires me to express his gratification. The foundation of the Wilbur Wright Lecture is an institution very much to the credit of the Royal Aeronautical Society, which is not only the oldest aeronautic body in the world, but also the first to found a permanent

by Trans-Atlantic flying, and it seems very appropriate that the most intimate contact should be maintained by those technical and scientific workers who are striving for the same end: the improvement and application of the gift of flight left us by Wilbur Wright.

Training the Young Idea

FOR some time now the 3rd Hampton (Middlesex) Troop of Boy Scouts have had an Air Section, and now, through the generosity of the Aircraft Disposal Co., it has achieved a cherished ambition and become the possessor of a real aeroplane. This machine—a De H. 6—is complete with 90 h.p. R.A.F. engine and propeller, and the boys, under the guidance of their air instructor—Mr. José Roberts—

are striving hard to learn all they can of the principles of flight and the construction and assembling of aeroplanes, being spurred on by the promise that those who become proficient will be taken to one of the aerodromes and given a flight on an up-to-date machine.

The Scoutmaster, Mr. E. R. Home Gall, and every member of the 3rd Hampton Troop are deeply grateful to the Aircraft Disposal Co., Ltd., for their generous and public-spirited gift.

AIRISMS FROM THE FOUR WINDS

A DIRECT benefit has accrued to the British Museum, and therefore to the Nation, in the generous gift by Lady Lucas of a splendid collection of 4,500 engravings of the 17th and 18th centuries, in memory of her brother, Lord Lucas, who was killed in 1916 whilst a member of the Flying Corps.

At a meeting last week of De Keyser's Royal Hotel Company the bones of the bureaucratic "By Grace" Dora ramp in connection with this hotel were laid bare by Sir Arthur Whinney in giving a financial forecast of the outcome of the successful litigation with the Government and of the sale of the property. Speaking of this litigation, Sir Arthur said that it had been an absolute and complete vindication of their cause, a cause which disenabled the Crown or disenabled the Executive Government—it was necessary in these days to draw a distinction between the Crown and the Executive Government—to seize a man's property without paying proper compensation to him. The outcome of the litigation was a sweeping and absolute victory, although it had meant the expenditure of a very large sum of money—no less than £20,000!

But what do these soulless bureaucrats care? Never a jot. It's the patient taxpayer who has to foot the bill if they lose. And there is always a chance (if they don't succeed in bluffing and scaring off the victim because of the ruinous cost of fighting these leeches) they *might* strike lucky and get another help toward bolstering up their iniquitous methods and inefficiency. And to think of it, the R.F.C. had originally to put up with all the blame and opprobrium, simply because the building was allotted to them for occupation. It must be a nasty pill for the grabbers to swallow.

A VERY practical rejoinder to the wilful destruction by the Germans of the Zeppelins specified to be handed over under the Peace Treaty is, upon the authority of the Chairman of the German Aerial Navigation Company of Friedrichshafen, forthcoming in the demand of the Allies for the replacement of the airships so destroyed. The requirements of the Allies are replacement on the basis of holding capacity, and as the destroyed airships measured over 50,000 cubic metres, the demand is, for each destroyed airship two small airships in return. On the recommencement of airship construction every third airship must be surrendered to the Allies until the number asked for has been delivered. Moreover, the Allies demand the entire destruction of the great construction buildings at Friedrichshafen, in which airships are made up to 70,000 cubic metres. Upon the latter point negotiations have, it appears, been started.

ACCORDING to the Chancellor of the Exchequer, in response to a suggestion by Mr. Forrest that a Special Commission should be appointed to consider *ex gratia* payments to uninsured people who had suffered from air-raids, it is not proposed to appoint the Commission until sufficient payments on account of reparation have been allocated to the Exchequer of the United Kingdom over and above prior charges, such as cost of Armies of Occupation. The method of applying for grants would then be a matter for the Commission when appointed.

Presumably this "allocation" would come from monies paid in respect thereof by Germany. In which case it looks as if the poor victims might well have to wait for the *ewigkeit*.

CANADA is in real earnest over flying. In the War her sons were in the front upon every possible opportunity, and it is this reputation which the Dominion intends to perpetuate. The first call for cadets for her new Air Force is to be made early next month. Fifteen hundred flying officers, it is stated, are to be trained each year, whilst all ex-flying officers in Canada will be enlisted as a body for four years, doing duty for one month every two years.

THAT "30 under," in the care of Lieuts. Parer and McIntosh, has duly arrived away under after its eleven

thousand mile journey, and has been duly delivered to the Premier of New South Wales, its addressee. As a mascot Scotch is pretty popular with others than flying men, we hear from an expert. But according to the "popular press" it was this little consignment which "brought them through in the end." So alcohol looks as if it had made good for aviation purposes, although it must be confessed the above authority does not disclose the exact part which the mascot took in ensuring the successful ending of the flight from England.

At San Sebastian last week the full Commission of military, naval and air experts under the League of Nations held a couple of Sessions under the presidency of General Echague (Spain) upon, amongst other matters, the regulations as to the forces and armaments, military, naval and aerial, of States seeking admission to the League and a further meeting of the Aerial Sub-Commission is to be held in Paris. But what on earth is the good of passing all sorts of pious resolutions when such men as Lenin, Trotsky, the Kaiser, Ludendorff, etc., not to mention some of the Ovskis in our own land, exist and are at large to follow their own machinations? They would agree to anything and laugh ha, ha! when the time arrived for them to act. It is a sad business altogether, but, after all, world-wide villany is in the ascendant just now, and the much-desired effective League is, we are afraid, as far off, if not farther, than ever.

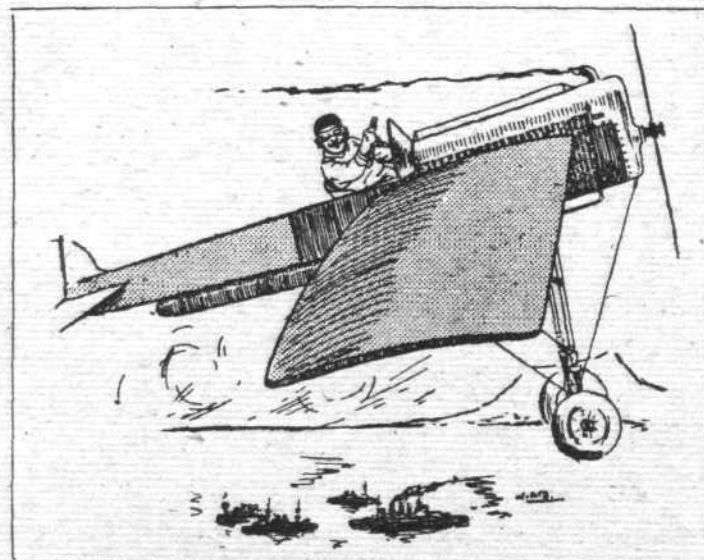
THINGS are getting on in air-travel when a demand is put forward seriously for saloon bars as an ordinary "accessory" to passenger aeroplanes. The way it is put by "The Londoner" is as follows:—

"A friend who travelled recently by air from London to Paris returned with only one complaint. 'I could get anything on the journey,' he said, 'except a whisky and soda. They had no licence, and I had to have mineral water with the luncheon basket I purchased on the trip.'

"Possibly in the future we shall see aerial saloon bars on the biggest machines. If the idea were developed sufficiently, America's out-of-work cocktail mixers might find a new outlet for their suspended activities."

"THE councils of the Trades Union of Carpenters and Joiners, at a meeting in Manchester today, decided to recommend their members, numbering 170,000 skilled woodworkers, in the event of a declaration of war on Russia, to refuse to make or repair war material, aircraft or shipping."

Not in the least understanding the position, naturally they would.



In 1950: "What a Miserable, Humdrum Life Those Poor Devils in Ships Must Lead!"

CIVIL AVIATION—OCTOBER, 1919, TO MARCH, 1920

(Continued from page 871)

Foreign Countries

EUROPE

Austria—Serious consideration is being given to air transport. An Aviation Department has been constituted under the State Secretary of Transport, and provisional regulations for air navigation were issued by a Decree of December 10, 1919. But so long as the economic situation remains as unfavourable as it is at present, it is unlikely that civil aviation will develop as rapidly as in other countries. One of the main difficulties is the shortage of petrol. The Luftfahrwesen Gesellschaft (known as "Lufag") has bought up the whole stock of service aircraft. They are being resold under the control of the Disposal Board, 60 per cent. of the excess over valuation price realised being credited to the State.

Belgium—A Department of Aviation, autonomous but temporarily attached to the Ministry of War, has been created. It is divided into four sections responsible for: (1) The organisation of air lines; (2) The exploitation of air lines; (3) General, judicial and diverse questions; (4) Aeronautical research work.

Navigation Regulations, based upon the International Air Convention, were published on November 27, 1919. Air Attachés have been appointed to London and Paris.

At the present time civil aviation is carried on almost entirely by, or in collaboration with, the National Syndicate for the Study of Aerial Transport, which has been formed, as forecasted in the last Synopsis, mainly by a combination of important Belgian bankers. The Syndicate has prepared a scheme for the provision of facilities on aerial routes for companies with which it has entered into agreement, is arranging to place its organisation at the service of the owners of civil aircraft at appropriate charges, and has under consideration the operation of mail and passenger services. During the month of February the receipts from passenger pleasure flying amounted to 34,000 francs, the total expenditure being approximately 20,000 francs. The Government has placed 2,000,000 francs at the disposal of the Syndicate for the purpose of inaugurating an experimental service of hydro-aeroplanes and hydro-glisseurs in the Belgian Congo, a fact which lends weight to a report that it is prepared to grant subsidies for the encouragement of transport companies.

Denmark, Norway, Sweden and Finland—Further conferences have been held between representatives of the Scandinavian States and Finland with the object of examining the terms of the International Air Convention, and discussing the most suitable form of air legislation.

The first official conference was held in June 1919, when an air code for these States was discussed. Since that date the conference has assembled at Stockholm in November 1919, and at Copenhagen in January 1920. The recommendations with regard to adherence to the International Air Convention reached at the last of these conferences, are now under consideration by the Governments of the respective countries.

Denmark and Norway have appointed commissions under the Ministers of Public Works and War respectively for the study of air transport and kindred subjects. In Sweden, legislation on civil aviation is effected through the Ministry of the Interior.

In Denmark the Aeronautical Commission considers that the institution of a civil Air Department would at present be premature, but it has accepted a scheme for the future organisation of civil aviation under the Ministry of Public Works, which will control flying by means similar to those provided by the British Air Navigation Regulations. It is also proposed to form a State Aviation Board to deal with technical questions, to control flying schools, and also, if desired, to assist the naval and military aviation services.

The Commission further recommends the early acquirement, on the coast near Copenhagen, of a suitable site for a combined aerodrome and hydroplane base, the existing accommodation at the naval and military stations being inadequate for the proposed civil service.

Meetings of north European air transport companies have also taken place in Denmark for the discussion of matters relating to international air communication services.

An air transport insurance pool representing a combine of some 80 Danish, Norwegian, Swedish, and Finnish insurance companies has been formed. Under its auspices the registration and classification of aircraft and pilots has commenced throughout the Scandinavian States.

The air transport companies in these countries have been active in preparing schemes for aerial routes, but as the

operation of these routes has generally depended on State grants which have not been forthcoming, no regular services have yet been established. Swedish and Finnish companies recently combined to inaugurate a service between Stockholm and Helsingfors, which it is hoped will commence in May or June next. An airship service between Germany and Sweden has been proposed, and a site for an airship station selected near Stockholm.

In Norway an official Air Traffic Commission has various schemes for air postal services from Christiania to Copenhagen, and the Norske Luftfartrederi, a private company, has prepared plans for opening a number of routes, including that between Bergen and Stavanger. The Storting, on March 16, 1920, dealt with a recommendation from the Communication Committee regarding a State contribution to an air traffic route. The sum of 300,000 kroner (£16,000*) requested by the "Norske Luftfartrederi" in aid of an experimental service extending over a period of four months has been reduced by the Committee to 60,000 kroner (£3,800). During the last six months, the market for British aircraft in Scandinavia has become more favourable owing to the inferiority of machines supplied from Germany.

France—The transference by the Decree of January 30, 1920, of the "Organe de Co-ordination Général de l'Aéronautique" and the departments dependent upon it from the Ministry of War to the Ministry of Public Works and the appointment of an Under Secretary of State for Air mark a fresh step toward the establishment of aviation on an independent basis. The Under Secretary of State is now responsible for the Air Navigation, Technical, Aircraft Production, and Meteorological Departments, and has created an Advisory Committee for Aeronautics to study problems connected with aviation. A Technical Consultative Committee has also been appointed to the Aeronautical Technical Department.

The French have promoted their interests abroad by increasing their representatives and by establishing a number of missions in foreign countries. In addition to an Air Attaché at London, Assistant Military Attachés, with the special duty of studying aviation, have been appointed to Washington, Stockholm, Brussels, Rome and Amsterdam. Official aviation missions have been sent to Argentina, Brazil, Japan, Peru, Poland, Finland, Serbia, Czecho-Slovakia and Turkey.

Consequent upon a reduction in the total French air estimate for the current year, there has been a re-grouping of the sums to be expended on civil aviation, with the result that whilst the subsidies to be given to air transport companies will be augmented, large economies will be effected in the purchase of service aerodromes and hangars. In conformity with the above policy, a new scheme of subsidies has been drawn up, based upon the value of the machine and engine and the number of hours flown. Other salient points are: a bonus to the crew, a premium on useful load and speed, and the additional grant of 25 per cent. for machines of military value. In addition to the Government subsidy, companies conducting an air mail service receive from the Postal Administration 8 francs for the first 100 grammes, and 1.60 francs for every additional 20 grammes of letters or parcels.

The State has acquired five aerodromes and 24 landing grounds for the use of civil aircraft, and these are placed under the Service de la Navigation Aérienne, which has issued provisional regulations regarding their use. Three aerodromes and six landing grounds have been opened and the remainder are being equipped. Le Bourget and St. Inglevert have been approved as customs aerodromes, and aerial lighthouses have been erected at St. Inglevert and Lille. In addition 13 military aerodromes may be used by civil aircraft belonging to the nations which have signed the Air Convention.*

The Decree of October 24, 1919, defining the conditions under which French civil pilots may use military landing grounds, has been modified to apply to foreign civil pilots whether they belong to air transport companies or not.

As in Great Britain, the problem of instituting an insurance scheme for air transport is at present under consideration, the Consortium des Assurances Aériennes having drawn up a list of tariffs applicable to public and private insurance companies.

Since September 1919, an aerial service between Toulouse

* Where the English equivalent of foreign money is given in this report, it is estimated approximately at the rate of exchange prevailing in April, 1920.

and Rabat has been operated by the Compagnie de Navigation Aérienne (M. G. Latecoere) which has obtained a concession from the Spanish Government. The route passes over Spain, with stops at Barcelona, Alicante and Malaga. Flights are made twice weekly in each direction. Mails and passengers are conveyed between France and Morocco and by a special arrangement Spanish mails are carried between the intermediate stopping places. The concession granted to the French Company is provisional and does not exclude or limit similar grants to others.

Another French company, the Société Anonyme des Transportes Aeronautiques du Sud-Ouest has been reconstituted under the title of Compania Franco-Bilbania des Transportes Aeronauticos, for the purpose of forming a Franco-Spanish company to open a service between Bayonne, San Sebastian, Bilbao and Santander, by which it is hoped to carry mails from Bilbao to connect with the Paris express at Bayonne, and, in the case of English mails, secure delivery in London on the following day by arrangement with the Paris-London air service. The company would be registered in France in order to retain the right to the French air transport subsidies. A regular service between Nîmes and Nice is conducted by the Compagnie Aérienne Française, a flight being carried out in both directions bi-weekly. The company is subsidised under the Government scheme. The "Aero-Navale" Company has under consideration the establishment of a seaplane service between Marseilles and Algiers, with an intermediary landing on the Balearic Isles (Spanish). At Pierrefeu, in the neighbourhood of Marseilles, there is a large rigid airship shed which is conveniently placed for international civil traffic by airships.

The policy of carrying out long-distance flights in order to connect France with her colonial possessions by air is still being actively pursued, and a successful flight has been made across the Sahara from Algiers *via* Timbuktu to Dakar.

Germany—The organisation of civil aviation has been steadily progressing during the last six months, but actual flying has been partially suspended owing to the shortage of petrol and the disturbed condition of the country. Germany now possesses a Ministry of Air and Transport. The Department for Air supervises general questions concerning air traffic, air regulations, aerodromes, aerial photography, the distribution of material, the classification and testing of types, inventions, meteorology and intelligence, wireless telegraphy, and the control of aerial organisations.

The German Government have also established a strict control over the movements of all aircraft. At the beginning

and end of each flight proof has to be given of the purpose of the journey. The pilot is obliged to hold a pilot's certificate issued by the State Air Department and, except in the case of flights carried out by air transport companies, a permit issued by the police authorities for each flight. Air transport companies, it is understood, are allowed to issue permits for flights under an arrangement with the State Air Department, to which they are responsible. All luggage carried by aircraft is subject to special inspection.

A number of new transport companies have been formed, and at present there are 25 such companies in existence. All these companies are as yet undeveloped, and the activities of the two principal organisations—the Deutsche Luftreederei and the Sablatnig—are at present very slight. Although the list of companies and firms engaged in civil aviation is at first sight imposing, it represents little of real account, in spite of the big press campaign conducted to demonstrate the existence and importance of German civil aviation. The present object of the companies is to interest the public in aerial transport and to keep going until the commercial aeroplane is a practicable proposition.

Germany has not yet produced a commercial aeroplane suitable for civil aviation, but many German engineers are working to discover a satisfactory type.

The Government Department for Air and Power Transport (Reichsamt für Luft und Kraftfahrwesen) has in the Supplement to the Home Allowance of the State Transport Ministry for the year 1919 allotted the sum of 500,000 marks (£2,300) as a subsidy for German aviation enterprise. The granting of the subsidy is conditional on the maintenance of air communication and of an air post. In the Home Office grant for 1920, 12,000,000 marks (£55,800) are to be devoted to the same purpose.

Germany is undoubtedly looking to airships to play a prominent part in her schemes for the future, and it is understood that the Germans hold the same views as ourselves as to the ultimate *role* of airships, namely, to carry out long-distance trans-oceanic and trans-continental non-stop tours. The airship "Bodensee" has been increased by 10 metres in length, and a new airship, "Nordstern," similar to the unmodified "Bodensee," has been completed. It is believed that the airship company using the present Friedrichshafen-Staaken route, on which the "Bodensee" successfully operated for three to four months last year, is to extend this route to the principal Scandinavian towns. This company has not carried out any flights since the end of November 1919.

(To be Concluded)

AVIATION IN PARLIAMENT

Houton Station, Orkney

MR. WASON on July 29 asked the Secretary of State for Air if he is aware of the extravagance carried on at Houton, Orkney, in running the Air Force; that the lorry and tender are doing no real work and are practically only used for running into Kirkwall and back for amusement, and that all the stores and rations could easily be carried by a small cart; and whether, under all the circumstances, he can see his way to abandon the station?

MR. CHURCHILL: I cannot accept the suggestion that there is any extravagance at Houton Station. Enquiries have been made, and the Air Officer Commanding reports that mechanical transport is only used for Service purposes. It would not be economical to provide horse transport specially for light loads. The question whether this station can be dispensed with is now under consideration.

Air Raid Victims' Grants

MR. FORREST asked the President of the Board of Trade when the Special Commission will be appointed to consider ex-gratia payments to people who, uninsured, have suffered from air raids; and whether he will announce the method under which applications are to be submitted?

MR. CHAMBERLAIN: It is not proposed to appoint the Commission until sufficient payments on account of reparation have been allocated to the Exchequer of the United Kingdom over and above prior charges, such as cost of Armies of Occupation. The method of applying for grants will be a matter for the Commission when appointed.

British and American Aircraft Patents (War Claims)

LIEUT.-COMMANDER YOUNG asked the Prime Minister whether His Majesty's Government has agreed to indemnify the Government of the United States against claims by British subjects against that Government in respect of the use by that Government during the War of British patents and other proprietary rights relating to aircraft; whether any reciprocal liability has been undertaken by the Government of the United States towards the British Government; and what is the estimated or ascertained measure of the financial liability of the British Government under this indemnity?

THE PRIME MINISTER: The British Government has accepted certain responsibilities and the American Government has given certain undertakings. The extent of the liability to be accepted by both Governments still forms the subject of consideration. The financial aspect of the matter cannot at present be gauged inasmuch as the responsibility of the respective Governments has not been clearly defined, and the claims to be dealt with thereunder have not yet been investigated.

Brussels-New York Airship Service

A MESSAGE from Brussels indicates that a scheme is being considered in Belgium and the U.S.—where it is being pushed by the Belgian Chamber of Commerce—for the organisation of an airship service between Brussels and New

Bristol Aeroplane Company.

MR. RENDALL on August 5 asked the Secretary of State for Air whether he is aware that men who left their work in 1914 and 1915 and went to the Bristol Aeroplane Company to work are still retained there, including woodworkers, carpenters, joiners, masons, etc., who are badly wanted for providing houses in and around Bristol; and whether women who left situations in shops and domestic service, and went to this firm in 1916, are also retained there whilst over 5,000 ex-soldiers are out of work in Bristol?

MR. CHURCHILL: The Bristol Aeroplane Company is a private concern, and the Air Ministry has no control over the numbers and types of workpeople the firm may see fit to employ. In so far, however, as skilled men are being employed in carrying out Air Ministry contracts, I can assure my hon friend that the work which they are doing is necessary for the Royal Air Force.

MR. RENDALL asked the Secretary of State for Air what contracts the Bristol Aeroplane Company, formerly the British and Colonial Aeroplane Company, have for the Government; and whether the Government are financing the above firm or giving them any form of subsidy?

MR. CHURCHILL: I am sending my hon. friend a list of the Air Ministry contracts on which the Bristol Aeroplane Company are engaged. The company is not financed or given any form of subsidy by the Government.

West Fenton Aerodrome, Haddingtonshire

MR. J. HOPK on August 6 asked the Secretary of State for Air whether he is aware that the West Fenton Aerodrome, Haddingtonshire, occupies a large area of land, of which 30 acres is unused and uncultivated; that this land of high agricultural value is a mass of weeds, the seeds from which contaminate adjacent highly cultivated farms; and whether he will either take steps to cultivate the land or clear it of the weeds?

MR. CHURCHILL: A report has been called for by the War Office, and I will write to the hon. member as soon as it is received.

The Air Navigation Bill

MR. CHURCHILL, Secretary of State for War and Air, on August 9 moved the second reading of the Air Navigation Bill, which had passed the House of Lords. This bill is the embodiment of the Air Navigation Convention held at Paris on October 13 last. The Convention was framed on the assumption that complete territorial sovereignty should be exercised by each Power over the air space over its own territory. Among other provisions of the bill are those giving local authorities power to acquire land for that purpose in connection with civil aviation, and dealing with jurisdiction in respect of crimes committed in the air. After a brief discussion the bill was read a second time and committed to a standing committee.

York. It is estimated that, with airships measuring 310 ft. in length and engines aggregating 6,000 h.p., the journey could be done in not more than 48 hours. Each airship, it is said, would be capable of conveying 200 passengers and the cabins would be luxuriously fitted up.

THE ROYAL AIR FORCE

London Gazette, August 3

Permanent Commissions

The date of appt. of Flight Lieut. L. L. MacLean to a permanent commn. (A.) is July 22, and not as stated in the *Gazette* of Aug. 1, 1919.

Short Service Commissions

Flight Lieut. G. H. Walker (A.) resigns his short service commn., and is permitted to retain his rank; Aug. 4. The following Flying Officers resign their short service commns., and are permitted to retain their rank:—F. N. Whiteley (A.); July 20. C. Eaton (A.); July 23.

Re-seconding

Observer Officer R. E. W. Sandall (Lieut., Lincolnshire Regt.), is granted a temp. commn. on re-seconding for a period of two years; July 30.

Flying Branch

Lieut. J. C. Bulteel to be Lieut. (A.) from (O.); Nov. 1, 1918.
Pilot Officer T. C. Black to be Flying Officer; Jan. 29 (since demobilised).
Pilot Officers to be Observer Officers.—G. Lansdowne, D.F.C.; Oct. 1, 1919. W. J. Harris; Jan. 27.

Flying Officer A. H. E. Lindop, M.C. (Capt., Indian Army), relinquishes his temp. R.A.F. commn. on reverting to Indian Army; June 26. (Substituted for *Gazette* of July 9.)

The following are transfd. to Unemployed List.—Sec. Lieut. J. M. Dunn; Jan. 27, 1919. Sec. Lieut. J. M. Simpson; April 8, 1919. Sec. Lieut. R. R. Edward; April 14, 1919. Lieut. A. Scott, M.C.; April 16, 1919. (substituted for *Gazette* of Dec. 23, 1919). Sec. Lieut. P. G. Cameron; April 19, 1919. Sec. Lieut. A. Bennett; June 6, 1919. Sec. Lieut. J. Somerville; Aug. 15, 1919. Lieut. H. C. Douglas; Sept. 14, 1919. Sec. Lieut. W. J. D. Shore; Sept. 24, 1919. Lieut. S. R. Clark; Sept. 25, 1919. Sec. Lieut. J. G. Davies; Sept. 26, 1919. Lieut. P. G. Mulholland; Oct. 10, 1919. Lieut. J. B. Allen, Sec. Lieut. R. S. Corbett; Oct. 12, 1919. Sec. Lieut. G. Brownrigg; May 13. Lieut. C. C. Villa; July 10. Lieut. E. G. T. Chubb, D.F.C.; July 22 (substituted for *Gazette* of July 23). Lieut. F. E. McC. Macy; July 24.

Lieut. J. I. Morgan relinquishes his commn. on account of ill-health contracted on active service, and is permitted to retain his rank; June 18 (substituted for *Gazette* of June 22).

Lieut. E. H. Ward relinquishes his commn., and is permitted to retain his rank; Feb. 25, 1919 (substituted for *Gazette* of March 11, 1919).

The initials of Capt. L. J. Bayly, M.C., are as now described, and not L. J. R. A. as stated in *Gazette* of April 30, 1918.

Administrative Branch

Lieut. H. M. Tayler (Capt., S. African Forces) relinquishes his temp. R.A.F. commn. on ceasing to be employed; July 13, 1919 (substituted for *Gazette* of May 11).

Lieut. L. H. Clemetson relinquishes his temp. R.A.F. commn.; Aug. 10, 1918.

The following are transfd. to Unemployed List.—Sec. Lieut. R. C. Jack; Jan. 29, 1919. Lieut. F. C. Matten; Dec. 5, 1919 (substituted for *Gazette* of Dec. 19, 1919). Lieut. A. L. Kidd relinquishes his commn., and is permitted to retain his rank; Nov. 6, 1919 (substituted for *Gazette* of Feb. 6). Sec. Lieut. (Hon. Lieut.) C. B. Marshall relinquishes his commn., and is permitted to retain rank of Lieut.; April 22, 1919 (substituted for *Gazette* of May 9, 1919).

Technical Branch

Pilot Officer E. Parrett to be Flying Officer; Oct. 1, 1919.
Pilot Officers to be Flying Officers, Grade (B).—T. W. Deary; Oct. 1, 1919 (since demobilised). J. G. Smithson; May 18.
Sec. Lieut. H. Smith to be Lieut., without pay and allowances of that rank; Jan. 12, 1919 (since demobilised). Lieut. J. Regan is placed on Retired List and is granted rank of Capt.; Aug. 4.

The following are transfd. to Unemployed List.—Capt. E. Barrett; Feb. 18, 1919. Sec. Lieut. F. W. Turner; March 8, 1919. Lieut. L. F. Buckingham; Aug. 1, 1919 (substituted for *Gazette* of Feb. 10). Sec. Lieut. E. J. Peek; Oct. 10, 1919. Lieut. S. A. Smith; Oct. 27, 1919 (substituted for *Gazette* of Nov. 11, 1919). Lieut. G. Forbes; Nov. 30, 1919 (substituted for *Gazette* of Jan. 6). Sec. Lieut. W. Brown; Jan. 27 (substituted for *Gazette* of April 20). Lieut. W. R. Jenner; May 23 (substituted for *Gazette* of June 8).

Capt. P. L. Hunting relinquishes his commn., and is permitted to retain his rank; Feb. 21, 1919 (substituted for *Gazette* of March 11, 1919). Lieut. J. S. Suckling relinquishes his commn., on account of ill-health contracted on active service, and is permitted to retain his rank; June 5 (substituted for *Gazette* of June 15).

The surname of Lieut. E. G. Giblin is as now described, and not as stated in *Gazette* of June 22.

The notifications in *Gazette*, July 23, concerning Lieut. H. Allsebrook, *Gazettes*, June 13, 1919, and June 15, concerning Sec. Lieut. R. C. Hill (notification in *Gazette* of Feb. 13 to stand), are cancelled.

Chaplains' Branch

The Rev. A. S. Bishop relinquishes his commn. on ceasing to be employed, and is appointed an Hon. Chaplain to the R.A.F.; July 1.

Memoranda

(Then follow the names of 11 Cadets granted hon. commns. as Sec. Lieuts.)
Sec. Lieut. T. S. Laird relinquishes his commn. and is permitted to retain his rank; April 17, 1919.

London Gazette, August 6

Short Service Commissions

Flying Officer E. A. B. Urmston (A.), resigns his short service commn. and is permitted to retain his rank; Aug. 7.

Flying Branch

Transfd. to Unemployed List.—Lieut. H. B. Evans; April 21, 1919. Maj. J. S. Mills, D.S.C.; Nov. 28, 1919. Lieut. W. R. K. Atkinson; June 18. Lieut. L. C. Bailey, Lieut. J. F. P. MacLaren; July 18.

Lieut. J. Barker relinquishes his commn., and is permitted to retain his rank; Feb. 2, 1919 (substituted for notification in *Gazette* of March 25, 1919). The Christian names of Flight Lieut. Reginald Baynes Mansell, O.B.E., are now as described, and not as in *Gazette* of July 23.

Administrative Branch

Lieut. C. H. Newbold to be actg. Capt. whilst employed as Capt.; July 27, 1918.

Transfd. to Unemployed List.—Lieut. J. K. Clifford-Jones; April 15, 1919. Lieut. (actg. Capt.) W. H. Lyall, M.B.E.; July 11. Lieut. A. E. Enders; July 16.

The notification in *Gazette* of June 18 concerning Sqdn. Ldr. A. R. Stanley-Clarke, M.C. (Capt., Dorset R.), is cancelled.

Technical Branch

Transfd. to Unemployed List.—Lieut. C. F. R. Johnston; Feb. 22, 1919. Lieut. H. A. Adams; July 17. Lieut. R. W. Davies; July 27.

Medical Branch

Capt. P. McDiamid, M.B., is transfd. to Unemployed List; July 21.

Memoranda

Sqdn. Ldr. S. J. Goble, D.S.O., O.B.E., D.S.C., is granted the hon. rank of Wing Comdr. whilst employed with the Commonwealth Government of Australia (Royal Australian Navy); Aug. 1, 1919.

Hon. Sec. Lieut. E. W. Ayling relinquishes his hon. commn.; June 22.

A Gift to the R.A.F. Memorial Fund

A GENEROUS gift recently received by the R.A.F. Memorial Fund is that from a lady who prefers to remain anonymous, the gift taking the form of two valuable houses within 30 miles of London. The properties are to be used or sold as may be wished, the only stipulation being that any proceeds from the sale are to be ear-marked for scholarships at one or other of the public schools for the sons of officers of the Flying Services who died in the War.

Amsterdam-Hamburg Service Started

A REGULAR service between Hamburg and Amsterdam commenced operations on August 3, this being one of the links in the chain of services which is to connect up Stockholm, Copenhagen, Hamburg, Bremen, Amsterdam and London.

The Amsterdam-London Service

OWING to the increasing popularity of the air service from Holland, it was necessary to charter a special Handley Page on August 5 to carry twelve passengers from Amsterdam to London. It is reported from Rotterdam that two Fokker aeroplanes will be added to the England-Holland air service. These aeroplanes will be equipped with wireless telephone.

The Paris-Geneva Service

FOR their service between Paris and Geneva, the French Aero Transport Company propose to use Sopwith three-seater machines, fitted with 130 h.p. Clerget engines. The charge will work out to about £20 for the single journey; return tickets, available for a fortnight, £30. The journey over the distance of 280 miles is estimated to take three and a half hours.

The Copenhagen-London Service

A FEW details are to hand from Copenhagen regarding

the services of the Danish Aeronautic Excursion Company which were due to start on August 7. There will be daily communication between Copenhagen and Berlin via Malmoe and Warnemunde, while between Copenhagen and London there will be a tri-weekly service via Warnemunde, Hamburg, and Amsterdam. The first trip to London was to have started on Sunday at 8.30 a.m., Amsterdam being reached at 7 p.m. The start from Amsterdam was timed for Monday at 6 a.m., and it was expected that London would be reached at 9 a.m.

Over the Alps

By way of celebrating his 1,000th flight, the Swiss aviator Charles Koepke made a trip above the Alps. Starting from Thoune, he flew over the Schingelkopf, the Faulhorn, Meiringen, the Grande-Scheldegg, then along the upper valley of the Lanterbrunnen back to the point from which he started.

The Meeting at Buc

FOR their meeting which is to be held at the Buc aerodrome on October 1, 2 and 3, the Aero Club of France has been promised the co-operation of the French Army and Navy flying services and the various branches of the aircraft industry in France. It is hoped that one of the attractions will be a Zeppelin, the L. 120, if she is delivered in time.

Flying Popular in Iceland

EVEN in Iceland there is talk of starting air services, and seemingly with every prospect of success. For some time, a company, of which Mr. Franck Friedrichson, who served in the R.F.C., is a leading spirit, has been giving exhibitions at Reykjavik, and more than 70 passengers were taken up during the month of July. It is proposed to give exhibitions in the chief towns, and then later on to start regular services between the towns.

Fatal Accident to Lieut. Orde

It is with the greatest regret that we have to record the fatal accident to Flight-Lieut. Michael Julian Orde, R.A.F., which occurred, on August 5, on Salisbury Plain. At the inquest Flight-Lieut. Porter said he was called to the deceased after the crash had taken place. Orde's skull was fractured, and both legs were broken. Death must have been instantaneous.

Flight-Commander Usher said the deceased had done a certain amount of flying. During the War in 1916 he was shot down and taken prisoner. He was released after the Armistice, and had just come to the Flying School with a view to passing the service machine test. The deceased started on a flight with an instructor in a dual control machine. He made a satisfactory start, but suddenly the machine started a steep climb, turned to the left, commenced to spin, and crashed to the ground. Witness, on reaching the spot, found Lieut. Orde dead in his seat, and the instructor, who had accompanied him, standing by the side of the aeroplane very much shaken. Deceased had been previously taken up in this machine that day to get used to its peculiarities, and the machine was in order. This dual control machine worked satisfactorily, except that the pupil got the mastery if he gripped the controls too hard.

He thought that was the cause of the accident. He added that the instructor endeavoured to get the deceased to release his hold of the controls, but without avail.

A verdict of "Accidental Death" was returned.

An Accident Reported by Moscow

It appears from a wireless message from Moscow that Augustina Osen, a Norwegian delegate to the Third International, has died as the result of an accident. When getting into an aeroplane she was struck by the wing of the machine, and fatally injured.

Double Fatality at Tokyo

A BRIEF cable message from Tokio, dated August 2, announced that two English aviators, Mr. Kilby (pilot) and Mr. Sunman (mechanic) crashed while demonstrating on a Thompson hydroplane, at the first meeting of the Imperial Aviation Society, and were instantly killed.

Italian Touring Machine Trial

It is announced from Milan that the result of the trial organised by the National Aerial League for small touring machines was as follows: 1. Macchi biplane; 2. Breda-Pinsuti triplane; 3. Ricci triplane. The height prize was won by a Breda-Pinsuti machine which reached an altitude of 4,200 metres.

High Flying in Texas

FROM San Antonio, Texas, comes a claim that Lieut. Waddington, flying a De Havilland aeroplane with seven passengers, has reached an altitude of 19,070 ft., which is believed to be a world-record.

The Flight to Alaska

THE four American military machines which recently set out from New York to fly to Alaska were reported on August 3 to have reached Jasper, Alberta, 2,350 miles from their starting place and a little over half way to Alaska.

Poulet in Java

M. POULET, starting from Batavia, recently flew over the Salak volcano (over 7,000 ft. high) and landed safely at Parakansalak, in the island of Java. Several spare parts have been ordered from Paris, but Poulet hopes to be able to continue his journey before they arrive.

Lieut. Roget's Progress

AFTER spending several days in Athens, Lieut. Roget set out last week to fly back to Paris *via* Rome, but he found it necessary to land at Brindisi in order to carry out a few adjustments.

Testing the "Roma"

By way of a trial trip the new Italian airship "Roma" on August 5 cruised from Rome to Palermo and back. For the outward journey of 450 miles, the airship took six hours.

Another Transatlantic Attempt

CAPT. ZULOAGA, of the Argentine Army, has now submitted the machine on which he proposes to fly from Buenos Ayres to Portugal to a committee of officers and engineers. While the latter are favourably inclined to the project, it appears that Army and Navy officers are against it. When the committee of experts has drawn up a report, it will be submitted to the competent authority.

Welshing at the Aerial Derby

AN echo of the Aerial Derby was heard at Hendon on July 5, when George Frederick Yates, 3, Chesterfield Street,

King's Cross, N.; Henry Levy, 328, Well Hall Road, Eltham, Kent; and Victor Leopold Boynton, 85, Rayleigh Road, West Kensington, were charged with welshing at Hendon on the occasion of the Aerial Derby. These three men were convicted at Chichester last week of similar offences at Goodwood. Levy was fined, and the two others, sentenced to three months' imprisonment, were brought up on the order of the Home Office from Portsmouth.

Prisoners were found guilty, and many convictions for welshing and other offences were proved against Boynton and Yates.

Boynton and Yates were sentenced to three months' imprisonment, the term to commence at the expiration of their present sentence. Levy was sentenced to one month's imprisonment.

PUBLICATIONS RECEIVED

Napier Achievements in the Air. D. Napier and Son, Ltd., 14, New Burlington Street, London, W. 1.

Jacques et Cecile ou le "Bonheur par le Sport." A. P. Editeur, 25, Boulevard des Italiens, Paris. Price 1 fr.

Air Service Information Circular. Vol. 1. No. 21. Aeronautical Book and Magazine List. Office of the Director of Air Service, War Department, Washington, D.C., U.S.A.

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AERONAUTICAL PATENTS PUBLISHED

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m. = motors.

APPLIED FOR IN 1918

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

Published August 12, 1920

5,594. J. HARGER. Manufacture of hydrogen. (147,235.)
11,092. Sir R. T. GLAZEBROOK, W. ROSENHAIN and S. L. ARCHBUTT. Aeroplane wings. (147,237.)

APPLIED FOR IN 1919

The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

Published August 12, 1920

1,567. CURTISS AEROPLANE AND MOTOR CORPN. I.C. engines. (126,941.)
9,521. W. S. SMITH and F. A. LINDEMANN. Gyroscopic turn-indicators. (147,271.)
10,084. C. H. HAMILTON. Inclinator. (147,305.)
32,449. G. C. WILLIAMS. Clinometers. (147,401.)

If you require anything pertaining to aviation, study "FLIGHT's" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages xx, xxi and xxii).

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